The Journal
OF THE KANSAS MEDICAL SOCIETY

In This Issue

SYPHILIS: GENERAL CONSIDERATIONS AND A METHOD OF TREATMENT—Charles C. Dennie, M.D., and Frank X. Dwyer, M.D., Kansas City, Missouri . . . . . Page 1

THERAPEUTIC USE OF CONCENTRATED PROTEINS—Lee H. Leger, M.D., Kansas City, Kansas. . . . . Page 12

BRUCELLA MENINGO-ENCEPHALITIS TREATED WITH STREPTOMYCIN—Archibald John Brier, M.D., Topeka, Kansas . . . . . Page 15

NEW AGREEMENT WITH VETERANS ADMINISTRATION—See President's Message Page 22

COMPLETE TABLE OF CONTENTS . . Page IV

JANUARY, 1947 VOL. XLVIII, No. 1

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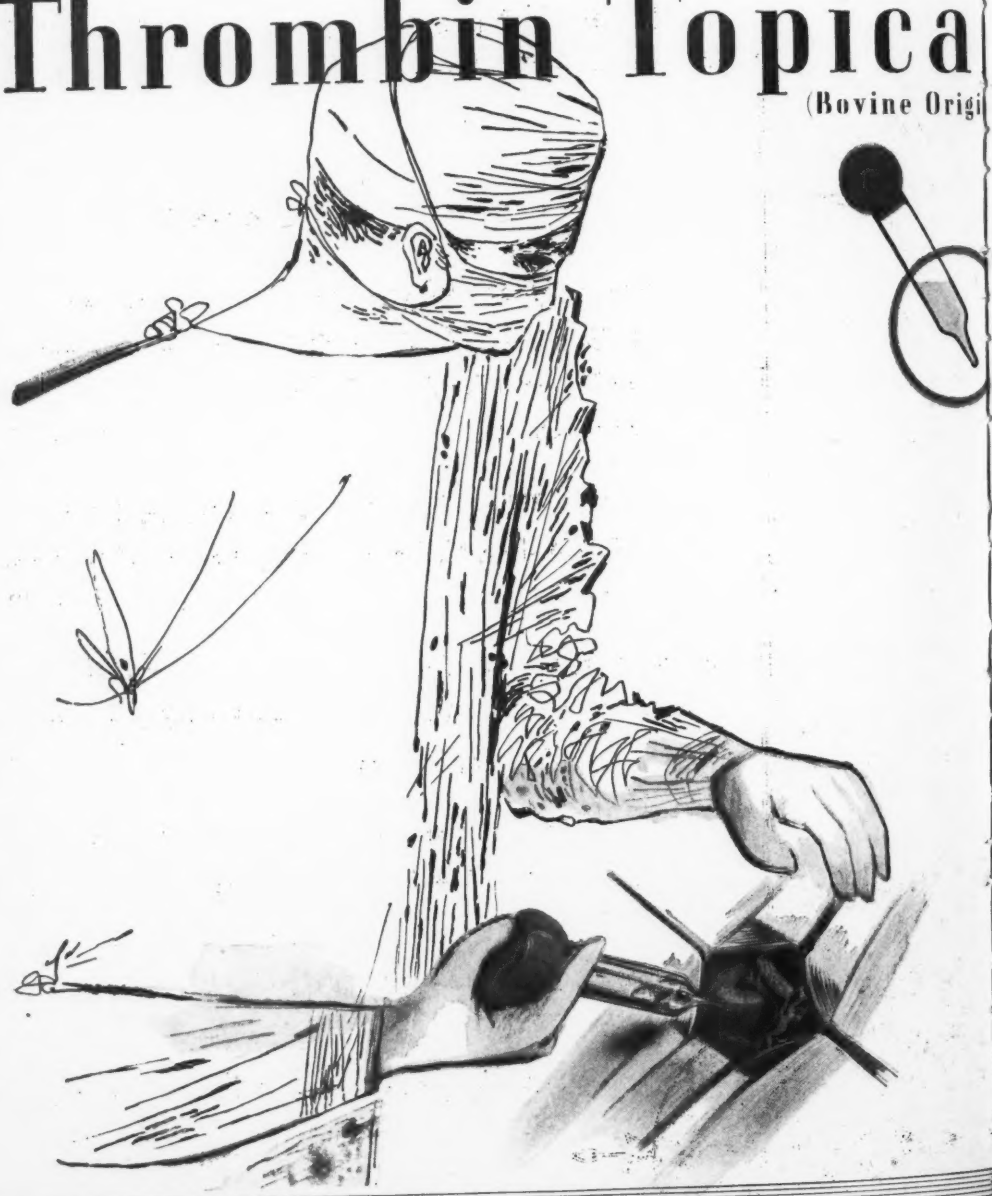

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TABLE OF CONTENTS

JANUARY, 1947

ORIGINAL ARTICLES

Syphilis: General Considerations and a Method of Treatment—Charles C. Dennie, M.D., and Frank X. Dwyer, M.D., Kansas City, Missouri 1

Therapeutic Use of Concentrated Proteins—Lee H. Leger, M.D., Kansas City, Kansas 12

Brucella Meningo-Encephalitis Treated with Streptomycin — Archibald John Brier, M.D., Topeka, Kansas 15

EDITORIALS

The Use of Federal Grants for Health Purposes 23

The Program of Cancer Control in Kansas 23

Annual Meeting—May 12-15, 1947 . . . 28

MISCELLANEOUS

Cancer Facts 21

President's Page 22

County Societies 30

Members 32

Entered as second-class matter, May 2, 1914, at the Postoffice at Topeka, Kansas, under the Act of March 3, 1879. Accepted for mailing at special rate of postage provided for in Section 1103, October 3, 1917. Authorized on July 2, 1918.

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Ownership: The Journal is a non-profit publication owned and published monthly by The Kansas Medical Society.

Subscription: Membership in The Kansas Medical Society includes subscription to The Journal. Rates to others, except in foreign countries, are $2.00 per year or 20c per copy.

Material: Scientific articles, editorials, and data of general interest are invited from all members. Articles are to be submitted on condition that they are contributed solely to this publication. A right is reserved to reject any material deemed unsatisfactory.

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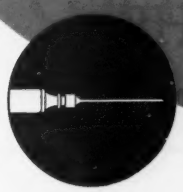
1. Puppe, J. K.: J.A.M.A. 129: 435 (Oct. 6) 1945.



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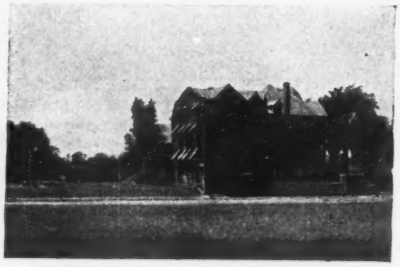

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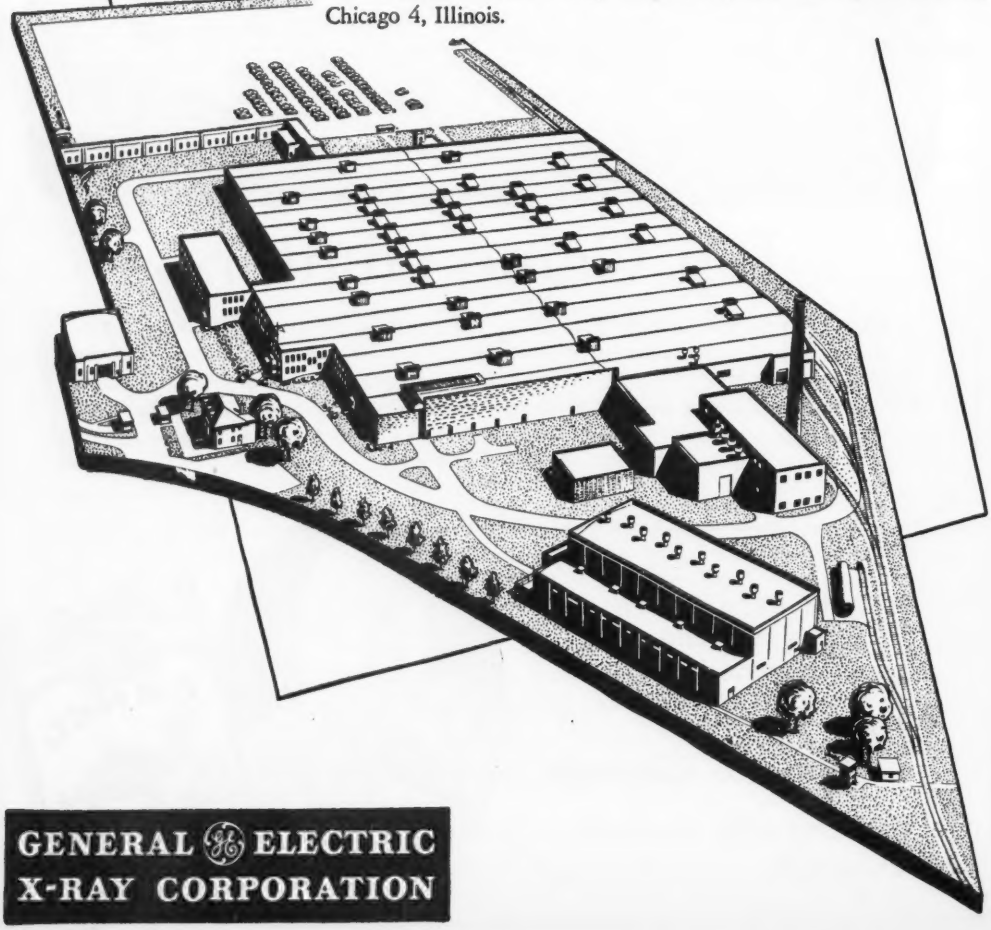

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1. Bunn, P. A.: in Conferences on Therapy: New York State J. Med. 46:527 (March 1) 1946. 2. György, P.; Evans, K. W.; Rose, E. K.; Perlingiero, J. G., and Elias, W. F.: Pennsylvania M. J. 49:409 (Jan.) 1946.

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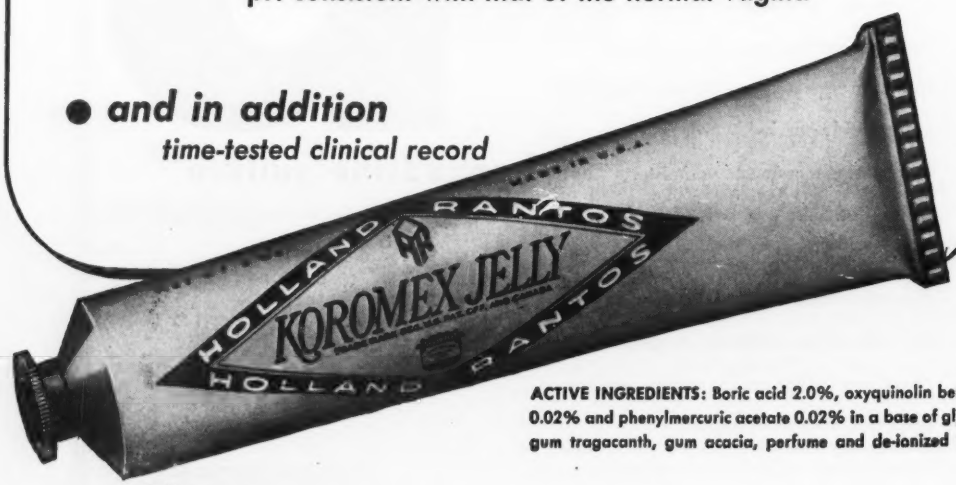

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Volume XLVIII JANUARY, 1947 Number 1

SYPHILIS: GENERAL CONSIDERATIONS AND A METHOD OF TREATMENT

Charles C. Dennie, M. D.*
and
Frank X. Dwyer, M. D.**
Kansas City, Missouri

The control of syphilis is dependent upon two factors: case finding and case treatment. Greater emphasis must be placed on the former before a substantial decrease in the incidence of syphilis can be accomplished. Syphilis can, and often does, imitate a variety of other diseases. Physicians must be trained to employ routine serological tests to a greater extent in the future than has been practiced in the past. The physician must be able to recognize the typical lesions of syphilis. He must determine by serological tests the presence of the disease when diagnostic lesions are not present. The vast number of syphilitics discovered by routine preinduction serological tests during the past war should serve to stimulate physicians to be on the lookout for syphilis in all patients, regardless of race, color, financial or social status.

The purpose of this article is to present the common diagnostic criteria by which syphilis can be recognized and to raise the index of suspicion toward those cases which are not clinically diagnosable as well as to outline the general methods of treatment as used at the present time in the Department of Dermatology and Syphilology of The University of Kansas Hospitals.

Genital or extragenital lesions caused by Treponema pallidum are classified as primary syphilis. Secondary syphilis causes generalized skin eruptions, mucosal lesions, loss of hair, iritis, neuroretenitis and bone and joint symptoms. All of these syphilitic manifestations are readily confused with many other diseases. Any disease with which syphilis might be confused must be differentiated by a darkfield examination and/or serological tests.

Latent syphilis, also known as "hidden syphilis," begins with the healing (spontaneous or under the influence of inadequate treatment) or early syphilis and extends for a variable period of time, ranging from a few months to a lifetime. Latent syphilis is not recognized clinically, the diagnosis being made only by serological tests. Modern serological tests are over 90 per cent efficient in the diagnosis of latency. The diagnosis of latent syphilis is untenable unless a cerebrospinal fluid examination, an x-ray and fluoroscopic examination of the heart and aorta and an adequate ocular examination have been performed and found to be normal.

Late syphilis may attack any part of the body, but 95 per cent of all patients with late syphilis develop lesions in one or more of seven systems:

1—The mucocutaneous structures
2—The bones and joints
3—The heart and aorta
4—The eye
5—The nervous system
6—The auditory and other cranial nerves
7—The viscera, especially the liver.

(1) The Mucocutaneous Structures

Late syphilids are characterized by asymmetry, the presence of a single or few lesions, induration, low-grade inflammation, indolence, annular, polycyclic borders, forming segments of circles in individual lesions or groups of lesions, sharp marginations (the punched-out ulcer appearance), tissue destruction and replacement with or without ulceration, central or one-sided healing with peripheral extension, superficial, atrophic, noncontractile scar and persistent peripheral hyperpigmentation. Many diseases of the skin possess one or more of these characteristics and can be easily mistaken for syphilis; however, modern serological tests are 95 per cent efficient in untreated late syphilis of the somatic system.

*Professor of Dermatology, University of Kansas School of Medicine, Kansas City, Kansas.
**Resident in Dermatology, University of Kansas School of Medicine, Kansas City, Kansas.

(2) Late Osseous Syphilis

Syphilitic osteitis, periostitis, gumma of bone, etc., are very confusing, but here again diagnostic difficulty will be solved in 95 per cent of the cases by the use of x-ray and routine serological tests.

(3) Cardiovascular Syphilis

Therapeutic hope in cardiovascular syphilis lies in the recognition of the lesion in the stage of uncomplicated aortitis before the development of aortic regurgitation or aneurysm. While uncomplicated aortitis is often not readily recognizable clinically, a considerable proportion may be diagnosed on the basis of

1—X-ray and fluoroscopic evidence of aortic dilatation, especially if localized to the ascending aorta

2—Increased retromanubrial dullness

3—History of circulatory embarrassment, especially exertional dyspnea with or without progressive cardiac failure

4—Tympanic, bell-like quality to the second aortic sound

5—Rough systolic aortic murmur, usually transmitted upward

6—Substernal, less frequently precordial, dull, aching pain, usually without radiation or relation to exercise

7—Paroxysmal dyspnea, not exertional and usually nocturnal

8—Later, the classic signs of aortic regurgitation, the early, blowing disatolic murmur heard marginally along the left border of the sternum, often a systolic aortic murmur, a collapsing pulse (Corrigan's water-hammer pulse), a double murmur in the great vessels when compressed (Duroziez's sign), a visible capillary pulsation and a high pulse pressure may be found.

9—Marked disparity between systolic and diastolic blood pressures where there is aortic regurgitation.

Uncomplicated aortitis and even advanced syphilitic cardiovascular disease may be present without symptoms or chest pains. This finding is especially true in negroes.

(4) Late Ocular Syphilis

The common lesions of late syphilis of the eye are keratoiritis, neuroretinitis, chorioretinitis and optic atrophy (primary, secondary or retrobulbar.) These lesions are not distinctly syphilitic, resembling lesions due to many other diseases. Evidences of syphilitic involvement elsewhere in the body and a positive serological test are diagnostic. A critical examination of the eye grounds is all important, especially in the congenital syphilitic.

(5) Syphilis of the Nervous System

Diagnostic confusion between syphilis of the central nervous system and other diseases is common. Diagnostic errors are particularly disastrous to the individual patient. History, physical examination, blood serological tests and examination of the cerebrospinal fluid will minimize these errors.

(6) Syphilis of the Auditory and Other Cranial Nerves

Involvement of the auditory nerve may occur with any type of neurosyphilis or may occur without other neuro-axis involvement, as is often the case in congenital syphilis. Either the cochlear or vestibular branches may be affected alone, or the entire nerve may be involved. Vertigo, nausea, vomiting, faintness, etc., whether accompanied by deafness or not, should arouse suspicion and employment of serological tests.

(7) Syphilis of the Viscera

Here again such diseases as cirrhosis, carcinoma, hepatitis, hepatomegaly from mycardial failure, cholecystitis, cholelithiasis, Hodgkin's disease, sarcoidosis, hepatic abscess, tuberculous peritonitis, etc., may confuse the physician, but serological tests and response to the iodides may often confirm the diagnosis.

CLASSIFICATION OF SYPHILITIC STATES

1—Early Syphilis

A—Seronegative Primary—diagnosed by darkfield examination, usually in the first three weeks

B—Seropositive Primary—usually diagnosed in the second week to the second month

C—Seropositive Eruption

(1) Early (2nd month—6th month)

(2) Late (6th month—3rd year)

D—Early Latent—asymptomatic, positive serology, of less than four years' duration

2—Late Latent Syphilis

Intermediary stage between early and late syphilis —implies positive blood serological reaction, normal ocular, cardiovascular and spinal fluid examinations, asymptomatic, of over four years' duration

3—Late Syphilis

A—Late Skin Manifestations

B—Neurosyphilis

(1) Meningeal Neurosyphilis, almost always an early manifestation, occurring within the first two years of the infection, includes

acute syphilitic meningitis

early asymptomatic neurosyphilis.

(2) Vascular Neurosyphilis may occur early or late, usually the latter—localized or widespread syphilitic cerebral endarteritis, sometimes with but often without meningeal or parenchymatous involvement; frequently in association with cardiovascular syphilis; causes cerebrovascular accidents, hemiplegias, monoplegias, subarachnoid hemorrhages, etc.

(3) Diffuse Meningovascular Syphilis

(4) Parenchymatous Neurosyphilis

a—Paresis

b—Tabes dorsalis
c—Taboparesis
d—Primary optic atrophy

In meningeal, vascular and diffuse meningovascular neurosyphilis the inflammatory element predominates, while in parencymatous neurosyphilis the degenerative element is predominant. Treatment efforts are more successful in proportion to the extent to which inflammatory changes predominate over degenerative or fibrotic lesions.

C—Cardiovascular Syphilis

(1) Early-aortitis without symptoms or physical signs

(2) Late

a—Diffuse and primary supravalvular involvement of the aorta, resulting in uncomplicated aortitis with or without diffuse dilatation

b—Less localized destruction of elastic tissue anywhere in the aortic wall (usually ascending aorta) with resulting aneurysm

c—Valvular involvement with subsequent distortion and valvular incompetency, with mechanical effects apparent in the heart and peripheral vessels

d—Progressive heart failure due to myocardial ischemia, produced by stenosing lesions of the coronary ostium without accompanying valvular disease

e—Syphilitic myocarditis—a rare complication

D—Benign (Osseous-Mucocutaneous) Late Syphilis

periostitis, osteomyelitis, osteitis, arthritis, gumma of bone or muscle, synovitis and late syphilids

E—Syphilis of Viscera

Larynx, trachea, bronchi, lungs, mediastinum, stomach, liver, spleen, rectum, kidneys, pancreas, testes and bladder are most common sites of involvement.

PRINCIPLES OF TREATMENT

A complete and thorough physical examination must be made before treatment is instituted. The type of treatment employed is dependent on the organ or system involved. Complicating diseases, which are often present, must be discovered and treated. Tuberculosis, nephritis, diabetes, hypertension, arteriosclerosis and others necessitate special treatment and precautions. A complete and thorough physical examination establishes a very necessary base line, from which the response to treatment can be measured. Records of cardiac measurement, blood pressure, the equality, regularity and reacting properties of the pupils, of reflexes, of the color of the optic discs, etc., at the time of the original examination are necessary to interpret such changes as may appear later. Thus, it can be seen that each latent or late case should have recorded a careful eye examination, including visual fields and eye grounds, x-ray and fluoroscopic examination of heart and aorta and spinal fluid examination in addition to a complete physical examination. In the examination of the spinal fluid it is imperative that the Wassermann reaction, total protein, globulin, colloidal gold and cell count be tabulated.

Clinical manifestations of early syphilis disappear about the time therapy is completed when penicillin is used. This is true to a less marked degree in late syphilis. The most reliable criterion, especially in early syphilis, with which to measure the effectiveness of treatment is a measurement of the reagin content of the blood; therefore, quantitative serological tests should be employed in all patients with syphilis before, during and after termination of treatment. A continuing index of reagin content is one of the most valuable controls in following the course of the disease. Spinal fluid quantitative serological tests are likewise important in the interpretation of response to treatment in cases of neurosyphilis. We routinely used the Kolmer, Wassermann and Kahn tests for blood quantitative studies and the former alone when testing cerebrospinal fluid. The quantitative serological examinations are reported in units according to the following formula:

(Kolmer test)

$N = 4D$

D = highest dilution giving at least a 2 plus reaction

N = number of units of reagin.

For example:

dilution	0	2	4	8	16	32	64	128
reaction	4	4	4	4	3	2	0	0

Here the highest dilution giving at least a two plus reaction is 32, and $4 \times 32 = 128$, the number of units reported. It is important that laboratories performing quantitative Kolmers set up the test with at least seven tubes, so that the full range of dilutions showing two plus or more can be reported.

At the present time, with the addition of penicillin to the therapy of syphilis and with the changing characteristics of commercial penicillin, it is impossible to outline a method of treatment utilizing penicillin that gives positive assurance of withstanding the test of time. Although penicillin is effective in both early and late syphilis, the use of penicillin alone in doses of 1.2 to 2.4 million units over a period of four to eight days reveals an incidence of treatment failures equaling, and perhaps exceeding, that obtained with combined arsenoxide-bismuth therapy. Efforts have been made recently to enhance the therapeutic effect of penicillin, notably by the U. S. Public Health Service in its rapid-treatment centers, by using other antisyphilic drugs in con-

junction with penicillin. It has been found that moderate doses of bismuth and arsenoxide used in conjunction with penicillin are far more effective than even large doses of arsenoxide used without bismuth or large doses of bismuth without arsenoxide. The two drugs used together with penicillin have been found to be so much more effective than either alone that a synergistic rather than merely additive effect is suggested. Consequently, the treatment schedule used in our department utilizes all three antisyphilic drugs, and the dosage used is purely arbitrary—high enough so that we feel it is entirely adequate and low enough to be financially practical. When using penicillin, it must be remembered that reactions are not infrequent and may be serious. Herxheimer effects may be avoided by reducing the dosage when initiating treatment and graduating it to the desired level during the first two or three days. This is especially important in cariovascular and neurosyphilis.

RESPONSIBLE FACTORS FOR SUCCESSFUL TREATMENT

Immunity plays one of the largest parts in the successful treatment of syphilis of any kind. Bruusgaard and also one of us (Dennie) have shown that, roughly, 25 per cent of all syphilitics spontaneously cure themselves. This phenomenon is due to the natural high titre of immunological substances in the human body. Twenty-five per cent more have such a mild syphilis that they only show positive serological reactions. Those individuals respond to a minimum amount of adequate treatment. Twenty-five per cent more have a moderately severe syphilitic disease, which will respond to sufficient treatment. The remaining 25 per cent are resistant to treatment. It may be that the addition of penicillin to the treatment of syphilis will change these figures. That remains to be seen. We regard malignant early syphilis arsenical fastness and penicillin recurrences as not due to the inefficiency of the drugs but due directly to the low immunological titre. Experimental work has been done by one of us (Dennie) to show that this is true. Nonspecific therapy thus becomes a MUST in the treatment of all syphilitic recurrences, whether early or late. The immune forces of the body toward syphilis can be raised in most instances by the use of malaria, heat cabinet or the hot bath. In cases of this kind, the therapist should not hesitate to use these measures in conjunction with penicillin, bismuth and the arsenicals as well as the iodides.

The pathological changes in syphilis are divided into four stages:

1—The stage of invasion
2—The stage of infiltration
3—The stage of resolution
4—The stage of cicatrization.

It naturally follows that the stage of invasion is the golden time for the therapeutist to eliminate the disease by intensive treatment. In this group the types that are especially susceptible to this method are:

(1) Seronegative primary syphilis
(2) Paresis sine paresi
(3) Beginning tabes dorsalis
(4) Early aortitis without symptoms.

The stage of infiltration represents that type of syphilis which has seated itself in the body strong enough to cause the reticulo-endothelial system to react. It has permeated all parts of the body. At this time the nature of the subsequent disease is determined. For example, if the patient will in later years have aortic disease, the Spirochaetae pallidae are implanted in the aorta at this time. The chances for cure in the infiltrated type of syphilis are still good but not nearly so good as in the invasive type.

The stage of resolution and the stage of cicatrization represent an era in the course of syphilis in which fibrous tissue is being formed or has formed. The inevitable marks of syphilis will always be with these individuals, even though they have been ridded of the disease. One can only hope by treatment to prevent further progression and to heal sick tissues.

METHODS OF TREATMENT

Seronegative Primary

This is the type of syphilis that responds best to penicillin arsenoxide-bismuth treatment. The ideal method of treatment requires hospitalization.

Treatment Schedule: (Table I)

days 1-10 penicillin, 6,000,000 units
arsenoxide, 0.04-0.06 gram every other day
bismuth subsalicylate, 0.2 gram once weekly

Follow immediately with

arsenoxide, 0.04-0.06 gram twice weekly for 10-12 weeks
bismuth subsalicylate, 0.2 gram once weekly during entire course
bismuth, 0.2 gram weekly for 10 weeks more.

Check the serological reaction at the end of the arsenoxide-bismuth course and before the final bismuth. If reagin should be present in any amount, give the 32-week treatment mentioned as the alternate to treatment without penicillin; i.e., penicillin plus 32 weeks' treatment.

In all other early cases—seropositive primary, eruptive early syphilis and early latency—the penicillin treatment is to be followed by 32 weeks of treatment.

Alternates:

If the patient cannot be hospitalized:

(a) The patient or his family can be instructed how to give the penicillin at home.

(b) 300,000 units of penicillin in beeswax can

be given in the office or clinic morning and evening for 10-12 days. The arsenoxide-bismuth treatment is to be given at the same time.

After the course is finished, check the serological reactions at the end of 1-2-3-6 months and 1-2-3 to 5 years.

If the penicillin treatment is impractical and the patient has early or early latent syphilis, a 32-week schedule of arsenoxide and bismuth subsalicylate is initiated, consisting of two courses of arsenoxide, 0.04-0.06 gram twice weekly for ten weeks, separated by a weekly injection of bismuth subsalicylate, 0.2 gram, for eight injections, the bismuth overlapping the last and first weeks of arsenoxide therapy, and terminating with a weekly injection of bismuth subsalicylate, 0.2 gram, for ten weeks.

Schedule: (Table II)

weeks 1-10 arsenoxide, 0.04-0.06 gram twice weekly
weeks 9-16 bismuth subsalicylate, 0.2 gram once weekly
weeks 15-24 arsenoxide, 0.04-0.06 gram twice weekly
weeks 23-32 bismuth subsalicylate, 0.2 gram once weekly

Total Treatment:

40 injections of arsenoxide
20 injections of bismuth

Total Time:

32 weeks

If the serological tests are negative at the end of this period, the patient is placed on probation and instructed to return to the clinic at the end of one, three and six months and one, two, three and five years. In the event the serological tests have remained the same or increased, the patient is urged to submit to the penicillin arsenoxide-bismuth course of 21 weeks, as outlined above. If this is still impossible, the course is repeated after a short (1-2 months) rest period. If the serological titre has decreased appreciably after one course of treatment, the patient is either probated with monthly quantitative serological checks, or the course is reinstated at once and followed through until one year of treatment has been given, at which time the patient is re-examined, including an examination of the spinal fluid. In the event the above schedule fails to produce seronegativity, penicillin and heat therapy is recommended.

Late Latent Syphilis

Our schedule for late latent syphilis begins with sodium iodide, 2.0 grams twice weekly, and bismuth subsalicylate, 0.2 gram once weekly, for a total of 3-6 weeks, with a moderate dosage (10 drops three times daily) of potassium iodide by mouth. Then, if practical, the 21-week treatment of penicillin, arsenoxide and bismuth is instituted. A gradually increasing dosage is employed. If this is not possible and the patient is moderately young and in good health, the 32-week course of 40 injections of arsenoxide and 32 injections of bismuth is instituted. In elderly patients (50 years) and those in poor health, the iodide-bismuth therapy is followed by alternate weekly courses of arsenoxide and bismuth, with relatively more bismuth and less arsenoxide—a total of 28 injections of arsenoxide and 32 injections of bismuth over a period of 52 weeks.

Schedule:

weeks 1-8 arsenoxide, 0.04-0.06 gram twice weekly
weeks 7-15 bismuth subsalicylate, 0.2 gram once weekly
weeks 14-23 arsenoxide, 0.04-0.06 gram twice weekly
weeks 22-32 bismuth subsalicylate, 0.2 gram once weekly
weeks 32-41 arsenoxide, 0.04-0-06 gram twice weekly
weeks 40-52 bismuth subsalicylate, 0.02 gram once weekly

At the end of this course a complete and thorough physical examination, quantitative blood serological tests and a spinal fluid examination are repeated. If the patient is seronegative and asymptomatic, he is placed on probation with periodic checks, as outlined above. If the patient is still seropositive, he is urged to take the penicillin-bismuth arsenoxide routine, or, as a second choice, the former course is repeated. If at the end of either of these schedules the patient is still seropositive and the reagin titre remains stationary, future treatment is left to the discretion of the experienced therapist to avoid the possibility of overtreatment. It is in cases such as these that heat therapy is indicated.

RECURRENCES—EARLY SYPHILIS FOLLOWING PENICILLIN THERAPY

The treatment of recurrences in early syphilis following rapid treatment with penicillin is a problem frequently encountered at present. According to recent U. S. Public Health reports, over 13 per cent of 8,000 patients treated by various methods of rapid therapy routine were retreated as failures. A small percentage of these were undoubtedly reinfections, but the great majority were clinical or serological relapses. It is our belief that, although penicillin is a marvelous spirocheticide and a very valuable adjunct in the treatment of syphilis, it does not stimulate the reticuloendothelial system or defense mechanism of the body, and in cases of relapse following penicillin therapy, heat, in the form of malaria, cabinet, typhoid or hot baths, is indicated. This is also true for neurorecurrences. In central nervous system syphilis penicillin is an active thera-

peutic agent. Its greatest effect on symptoms and signs occurs in mental breaks, incoordination, tremors and speech defects of paretics and in the lightning pains of tabetics. Destructive lesions, such as shown by fixed pupils, absent reflexes, etc., do not improve. Spinal fluid abnormalities are particularly responsive to penicillin, especially asymptomatic neurosyphilitics—the least on paretics.

CARDIOVASCULAR SYPHILIS—STAGE I—UNCOMPLICATED AORTITIS

The treatment of choice for patients with uncomplicated aortitis consists of 6,000,000 units of penicillin (100,000 units* every three hours for eight days), preceded by 6-8 weekly injections of bismuth subsalicylate, 0.2 gram, combined with small, graduated doses of arsenoxide and full doses of bismuth for 20 weeks, as outlined in the treatment of early syphilis. If the patient is intolerant to arsenoxide, we substitute bismarsen, 0.1-0.2 gram weekly, during and following the penicillin. If this schedule is impractical, the patient is placed on alternate weekly injections of bismuth, 0.2 gram, for 12 weeks and weekly injections of arsenoxide in graduated doses of 0.04-0.06 gram for eight to ten weeks, with overlapping of the last injection of bismuth and the first injection of arsenoxide and the last injection of arsenoxide and the first injection of bismuth of each course. Potassium iodide, 10-30 drops three times a day, is given throughout, and the treatment is carried through for at least one year, at which time the base line physical examination (heart, aorta, eye and spinal fluid) is rechecked. During this treatment the heart is rechecked at frequent intervals and a careful watch for insufficiency is maintained. The above course should be repeated, with rest, if necessary, after the bismuth. The patient is then followed periodically with an occasional course of treatment (once a year)—a course of bismarsen, 0.2 gram weekly for ten weeks. Here again there is a tendency to overtreat, and the decision is left to the experienced therapist.

CARDIOVASCULAR SYPHILIS—STAGE II—ANEURYSM OR AORTIC REGURGITATION

The treatment of patients with aortic aneurysm and/or regurgitation in the absence of congestive heart failure involves danger, and the results are often disappointing. General medical care, rest, restriction of physical activity, digitalis when needed and nitroglycerin and theobromine derivatives for pain demand attention. It is especially important to avoid Herxheimer's reactions, and this is best done by initiating treatment with bismuth and iodides and continuing for 8-12 weeks before attempting penicillin or arsenicals. Treatment should be mild, prolonged and continuous. We consider penicillin in graduated doses to a total of 6,000,000 units combined with ten weekly injections of bismarsen, 0.1 to 0.2 gram, to be the treatment of choice. A rest of one month is followed by 10 additional weekly injections of bismarsen. The patient is then retreated at 10-week intervals with from five to ten injections of bismarsen for at least one year. Intravenous injections of arsenicals must be used with great caution. Potassium iodide, 10-30 drops three times a day, is used the first four months and during the bismarsen courses thereafter.

Schedule:

1—0.1-0.2 gram bismarsen, intramuscularly, weekly for 10 weeks
2—Rest 1 month
3—Repeat the 10-week treatment
4—Rest 10 weeks, then give 5 to 10 weeks' treatment—until 1 to 3 years' treatment is given
5—Saturated solution of potassium iodide, 10 to 30 drops 3 times a day, throughout the course.

The intravenous injection of arsenic is contraindicated.

CARDIOVASCULAR SYPHILIS—STAGE III—CONGESTIVE HEART FAILURE

The treatment of cardiovascular syphilis with congestive heart failure consists of hospitalization and digitalization, with potassium iodide only, until compensation is regained. Then, bismuth sodium tartrate is given every 3-4 days for 4-8 doses, followed by bismuth subsalicylate, 0.2 gram, weekly for twelve weeks, after which bismarsen, 0.1 to 0.2 gram, is given, being careful to avoid a Herxheimer's reaction. If tolerant, the patient is allowed to rest for six weeks to two months, then weekly injections of bismarsen are resumed for six to ten doses. This treatment is continued for a year to eighteen months, and any further treatment is left to the judgment of the experienced therapist. Potassium iodide, 10-30 drops three times a day, is used throughout with very frequent cardiac examinations.

BENIGN (OSSEOUS MUCOCUTANEOUS) LATE SYPHILIS

The ideal treatment for benign (osseous-mucocutaneous) late syphilis consists in hospitalization for 6,000,000 units of penicillin combined with arsenoxide, 0.02-0.06 gram, every other day and bismuth, 0.2 gram, on the first and last days, followed by alternate courses of bismuth subsalicylate (8-12 weekly injections) and arsenoxide, 0.04-0.06 gram, (6-12 weekly injections) for two years. Iodides are used throughout.

NEUROSYPHILIS—EARLY PARESIS—MINIMAL NEUROSYPHILIS—MINIMAL VASCULAR NEUROSYPHILIS

GENERAL CONSIDERATIONS IN TREATMENT

Asymptomatic neurosyphilis and paresis sine paresi, before the advent of penicillin, responded in 50 per cent of the cases to one year of treatment

*Start with 20,000 units and increase each dose by 20,000 units until 100,000 units have been given. This procedure is used to avoid a Herxheimer's reaction.

with neoarsphenamine, bismuth and the iodides. Since the advent of penicillin, we advise this same course of treatment together with penicillin and 2-4 sustained hyperpyrexia treatments, in which the patient is kept in the cabinet from 2-4 hours at a temperature of 105°F-106°F. Where it is impossible to secure heat treatments, the hot bath can be used. The course of treatment would be the same as that used in seronegative primary syphilis.

Acute paresis and acute tabes, on the other hand, require some preliminary treatment to prepare them for malaria or hyperpyrexia, especially if they have had no previous treatment. It has been found that serious results, even death, occur four times more frequently in these patients when preliminary treatment has not been used. About three weeks of treatment with sodium iodide, 2.0 grams, intravenously, and soluble bismuth, 2.0 grams, should be used before the institution of nonspecific therapy.

It is almost unnecessary to say that before the institution of nonspecific therapy, a complete physical examination should be made, which includes a spinal puncture, chest examination, eye ground examination, blood pressure reading (above 150 is dangerous), urine examination, blood chemistry, nonprotein nitrogen, urea nitrogen, sugar and hemoglobin estimation and a history of sensitivity to quinine, if malaria is used. Malaria, tertian or quartan, should be used. We prefer the quartan because of the fact that the rise of temperature remains above 104°F for a much longer period than the tertian, and the patient has time enough between bouts to recover from the previous one. A total of 40 hours of fever above 104°F is desirable. Patients should not be exhausted by this treatment. If the blood pressure begins to fall alarmingly, anemia develops suddenly, the spleen enlarges rapidly or the temperature rises above 106.5°F, measures should be taken to control the malaria. It may have to be terminated, but usually the height of temperature can be conrolled by one or two injections of thiobismol. Supportive treatment should be given with the malaria in the form of assimilable iron by mouth, injections of crude liver and a high protein and carbohydrate diet.

HYPERPYREXIA

If for any reason malaria cannot be used, cabinet heat should be substituted. The same contraindications occur here as in malaria. There is only one difference, and that is that the regulative heat center is more likely to be thrown out of kilter by the use of hyperpyrexia. In nearly all instances this accident can be prevented by close observation of the patient. If the patient's temperature rises too suddenly and keeps on rising after he has been removed from the cabinet or the heat has been turned off, to the peak of 107°F, this treatment should not be repeated.

Treatment of choice for early paresis, paresis sine paresi, minimal neurosyphilis-asymptomatic with minor fluid changes or minor neurological signs with normal spinal fluid, vascular neurosyphilis without aortitis:

21 weeks of penicillin-arsenoxide-bismuth regime (TABLE I)

32 weeks of arsenoxide-bismuth therapy (TABLE II)

Alternate course without penicillin:

32 weeks of arsenoxide-bismuth treatment, holding to the overlapping of the bismuth and arsenoxide

If there is no or only slight serological or clinical improvement, nonspecific methods should be used:

1—Malaria (tertian or quartan), 40 hours or more of temperature rise above 104°F

Penicillin, 6,000,000 to 10,000,000 units

2—Heat cabinet, 40 to 60 hours of temperature rise above 104°F (105°F-106.2°F sought)

Penicillin, 6,000,000 to 10,000,000 units

Arsenoxide, 5 doses

Bismuth, 2 doses

If still not conquered, add tryparsamide and bismuth after one month's rest:

20 weekly doses of tryparsamide, 2.0 grams

10 weekly doses of bismuth, 0.2 gram.

Examine spinal fluid and, if not satisfactory, repeat tryparsamide regime.

The eye grounds are to be examined before and after the first, third, fifth and tenth doses.

Neurosyphilis—Stage of Late Paresis

The treatment of late paresis (symptomatic with or without marked paretic gold curve or asymptomatic with marked gold curve) requires hospitalization after intensive preliminary treatment with iodides and bismuth (2-8 doses). Hospital routine calls for fever therapy and penicillin, 6,000,000 to 10,000,000 units. Malaria is the preferred form of fever to be used in these cases. If fever therapy cannot be undertaken at once, tryparsamide is used to fill the interim. The penicillin-fever combination is followed by alternate courses of tryparsamide (20) and bismuth subsalicylate (20) to a total of 40 of each. The spinal fluid is reexamined every six months, and further treatment (involving arsenoxide, bismuth, tryparsamide or fever) is dependent on these findings. Potassium iodide, by mouth, is continued throughout. Visual fields of eye grounds are checked during tryparsamide therapy, as outlined above.

Neurosyphilis—Stage of Tabes Dorsalis

Tabes dorsalis therapy is determined from three standpoints:

1—The desirability in certain cases of giving treatment or withholding it

2—The probable results obtainable

3—The relief of particular symptoms by special therapeutic methods.

In approximately 10 per cent of tabetics spontaneous arrest occurs. Symptoms may disappear, regress or remain in status quo for many years or indefinitely. This is the syndrome of so-called "burnt out" tabes. In these cases treatment occasionally stirs up dormant symptoms and actually promotes rather than checks progress. Treatment and its type in these cases should be based more on possible evidences of syphilis outside the central nervous system rather than on the neurological lesions. If given at all, treatment should be mild, tonic and prolonged (arsenoxide and bismuth with potassium iodide in moderate dosage only). In the remaining 90 per cent of tabetics treatment is obligatory either for relief of symptoms or arrest of progress, and the type of therapy depends partly on the patient's general physical condition and partly on whether he suffers from either one or two particular manifestations of the disease, primary optic atrophy or gastric crises.

The treatment of choice in tabes without optic atrophy or gastric crises and without well-marked cardiovascular syphilis is penicillin, 6,000,000 to 8,000,000 units, combined with bismuth subsalicylate, 0.2 grams every five days, and 3-10 cabinet fever treatments of moderate intensity, followed by bismuth subsalicylate, 0.2 gram weekly for 10-20 weeks, then alternate courses of arsenoxide, 0.04-0.06 gram weekly for 8-10 weeks, and bismuth subsalicylate, 0.2 gram weekly for 8-10 weeks, for a minimum of one year. Potassium iodine, 10-30 drops three times a day, is used throughout. The spinal fluid is examined every six months. If cabinet heat cannot be used, the hot bath or double injections of typhoid vaccine may be used. Patients with gastric crises and in fair general physical status are also treated by this method with careful supervision of the fever therapy. The gastric crises can be helped or alleviated by various therapeutic methods to be found in modern textbooks. None are 100 per cent effective. Morphine should not be used. We have had good results with atropine, grains-1/150, intravenously, for three succcessive days. This treatment is followed by weekly bismuth injections and possibly in combination with tryparsamide, depending on the status and response of the individual patient and, especially in taboparesis, in the absence of optic atrophy of any degree. If the patient is elderly, if his general physical status is poor, if he has an associated cardiovascular syphilis, treatment must be much less intensive. Penicillin followed by courses of arsenoxide, alternating with bismuth subsalicylate (arsenoxide in small doses with three to 4-month intervals between arsenoxide courses, followed by bismuth and iodides), is advisable. Short rest periods are desirable.

In tabes dorsalis the most tragic disturbance is the formation of Charcot's joints, which are divided into two groups:

1—Nonreparative stages, in which the affected joints seem to melt away without any snowflake pieces of bone about them, which indicates nature's attempt at reconstruction.

2—The reparative type, in which nature attempts to repair the joint but, being unsure of her aim because of incoordination, plasters the bone about but not in the joint.

A great deal can be done for the patient with the reparative type of Charcot's joints, especially if the involvement be in the spine or the hip joint. Preliminary treatment with hyperpyrexia, penicillin, the iodides and bismuth for six months prepares the patient for operative measures. An Albee's operation can be successfully performed on the spinal cases and a bone shelf placed in the ilium for the support of the great trochanter, where the head of the femur has disappeared. We have several cases of this type, who are now walking about and are self-supporting after from one to twelve years. These results were secured in all but one case without the aid of penicillin.

Syphilitic Optic Atrophy

The course of untreated primary syphilitic optic atrophy invariably leads to blindness, the second eye always becoming involved. Much depends on early diagnosis and prompt institution of treatment. Fever therapy (in the form of malaria, cabinet or hot baths), penicillin and graduated doses of arsenoxide and full doses of bismuth, as in the outlined treatment of early syphilis, is our treatment of choice. This is followed by intensive, carefully managed, arsenoxide-bismuth therapy, as outlined in the outpatient treatment of early syphilis. Tryparsamide is contraindicated. Quinine should not be used to terminate malaria in cases of optic atrophy. Arsenicals are used with caution. If hot baths are used, and they are especially indicated in elderly patients and those in poor health, the patient should receive 40 hours above 104°F and 60 hours over 103°F.

Secondary syphilitic optic atrophy is the result of neuroretinitis or optic neuritis or is associated with extensive inflammatory lesions of the choroid and retina, and is relatively influenced by treatment and calls for no special measures.

TREATMENT OF SYPHILIS OF THE VISCERA

Hepatosplenic syphilis is the most spectacular of visceral diseases. It can be divided into three groups —the infammatory, the fibrous and the gummatous

types. The inflammatory type is found most frequently in the congenital syphilitic and in early syphilis. In both of these cases preliminary treatment with the iodides and bismuth for three weeks followed by the arsenicals gives the most dramatic results with a minimum of danger to the individual. Penicillin can be added if desired. In the fibrous and gummatous types long preliminary courses of iodides by mouth and intravenously plus bismuth intramuscularly should be used. It is doubtful whether penicillin has any place in the treatment of this disease. Arsenic is absolutely contraindicated because of the paradoxical cure first mentioned by Wile (Udo J.). This is characterized by the fact that gratifying results are secured in the initial stage of the treatment, but the patient dies soon thereafter of hepatic cirrhosis or acute yellow atrophy. Successful treatment has been secured on a considerable number of these patients by the use of iodides and bismuth only.

TREATMENT OF SYPHILIS OF THE SPECIAL NERVES

The special nerves have been discussed to some extent. An outline for the treatment of optic atrophy has been presented. Certain other conditions of the eye, such as interstitial keratitis, chorioretinitis, iritis, etc., are met with in syphilitic disease. In all of these conditions the use of hyperpyrexia in some form is imperative. Interstitial keratitis and iritis respond with gratifying results. It is well to use penicillin with this treatment as well as the iodides and bismuth. Subsequent treatment may consist of the arsenicals, bismuth and iodide, according to the age and physical condition of the patient.

The auditory nerve may be affected in early syphilis and consists of inflammatory changes, which resolve to the penicillin-arsenoxide-bismuth regime, or of chronic degenerative changes, which do not respond well to treatment. The degenerative changes are found most frequently in the congenital syphilitic.

The nerves supplying the sensations of taste and smell may sometimes be involved. All cranial nerves show the disease either as an acute inflammatory process or a degenerative one. The same line of treatment is used, and the same prognosis is made.

SYPHILIS OF THE BONES AND JOINTS

Particularly susceptible to syphilitic bone diseases are the flat bones of the skull. This condition occurs with more frequency in the congenital syphilitic than in the acquired and may include both tables of the skull.

Excepting in the congenital syphilitic individuals, syphilis in the joint is a rare finding. Charcot's joints have been mentioned. Occasionally joint surfaces are destroyed that are not Charcot in nature. Most of the acquired syphilitic joint disease affects the bursa of the joints, of which the most glaring example is the bursitis of Verneuil. In the congenital syphilitic the most typical joints are mono or bilateral infusion of fluid into the joints, known as Clutton's joints. In both instances these joint diseases are extremely resistant to treatment. Heat in some form should always be used, as is indicated in interstitial keratitis, which often accompanies Clutton's joints. With the exception of osteochondritis and saber shins, occurring in the congenital syphilitic, the bone manifestations of syphilis are classified as simple periostitis, osteitis, gummas, subperiosteal gummas, which may or may not break through to the surface, and extreme fragility of the bones, which is present most often in tabes dorsalis. Most bone and joint diseases of syphilitic origin are due to the late syphilitic disease. The general considerations of treatment are the same as those of any late syphilis, stress being placed on the iodides by mouth and intravenously and intramuscular injections of bismuth. Penicillin may be used, but the arsenicals should be used with caution.

SYPHILIS OF PREGNANCY

Because of the high rate of veneral disease in the armed forces, the returning soldier is likely to be infected with syphilis without his or the army's knowledge. We predict that the rate of congenital syphilitic infants will be on a continual rise for 10 years, as it was after the other war. Therefore, the treatment of syphilis of pregnancy becomes of prime importance. It is true that the state of pregnancy reduces the virulence of the syphilis in the mother, in some instances to the point that in later years all serological findings and evidences of syphilis are gone, having spontaneously disappeared without treatment. The most frequent cause of loss of the fetus after the fourth month is syphilitic disease. One of the easiest feats accomplished in the treatment of syphilis is to prevent the birth of syphilitic infants. Before the advent of penicillin, the effect of which is not well known, 92 per cent of all infants born to syphilitic mothers who had adequate treatment were apparently free of the disease.

The old course of treatment consisted of a minimum of twelve doses of neoarsphenamine at weekly intervals with an equal number of injections of bismuth. Therapeutists at that time began and ended their course of treatment with neoarsphenamine. The object in the treatment of the syphilitic mother is that she may bear a nonsyphilitic child. Two factors are taken into consideration:

a—To prevent the Spirochaetae pallidae from ever entering the embryo's body. It has never been proved that it does before the fourth month; therefore, treatment started before the fourth month will

in all probability prevent this calamity. Greater chance of success is obtained by treating the mother before and during the whole pregnancy. If treatment is begun after the fourth month of pregnancy, one feels sure that in a considerable number of cases the spirochaetae have already entered the body of the fetus.

b—The object there is to give sufficient treatment to rid the fetus of its disease. It is an axiom that these mothers must have complete physical examination accompanied by all the necessary laboratory work, and that during the course of the treatment frequent blood pressure readings, urine examinations and blood checks must be made. Pregnant mothers take carefully supervised antisyphilitic treatment well. Every syphilitic mother should have her treatment with every pregnancy in spite of changes in serological readings. Those women with early infections stand the most chance of transmitting the infection to the infant, while those with late syphilitic manifestations, either with the somatic involvement or central nervous system involvement, are less likely to transmit it.

According to the modern idea of treatment, which is not yet substantiated, penicillin must be a part of the therapeutic regime. The treatment in this case would be the same as the treatment of early syphilis, using the penicillin arsenoxide-bismuth regime. After this course has been given in the hospital, there are two methods open for follow-up treatment —alternating courses of neoarsphenamine and bismuth, in which 10 weekly doses of neoarsphenamine, 0.3-0.45 gram, are given weekly. Beginning with the ninth dose of neoarsphenamine and the tenth, a course of eight injections of bismuth is given, the seventh and eighth accompanied by neoarsphenamine in weekly doses for 10 doses. The course of treatment must always be planned so that it ends with the arsenicals. If the therapeutist wishes to substitute arsenoxide, it must be given twice a week for a total of 40 doses, if possible, using the same timing as was directed with neoarsphenamine. If 12 doses of neoarsphenamine or 20 doses of arsenoxide are given during the course of the pregnancy, it is extremely likely that the child will be born without the disease. The mother's treatment should begin again soon after the child is delivered and continue along lines similar to the treatment of late latent syphilis.

The infant's cord and corporeal blood should be examined as soon after birth as practical. Interpretation of these findings is likely to give some wrong impressions. The test on the cord blood is unreliable, and the test on the infant's blood, while more reliable, if possitive, may be due to passive transfer from the mother's blood, if her serological reactions are strongly positive. If her serological reactions are negative at the time of the infant's birth, positive findings in the child's corporeal blood are highly significant. Radiographs of the skeletal system of the infant should be made soon after birth, at the sixth week, the third month and at the end of a year.

Infantile syphilitic bone disease is peculiar to infants. Osteochondritis, which must be differentiated from bismuth lines, is the rule and is perfectly demonstrated by the x-ray. These findings never occur after the end of the second year. If the infant's blood is positive in the presence of absolutely negative findings, including the x-ray, treatment should not be instituted immediately, but titred serological examinations of the blood should be made at the end of a week, two weeks, a month and two months. If, without treatment, the reagin titre is continuously falling, it means that the infant is not syphilitic, but the serological reactions are due to passive transfer from the mother. If in the examination of the reagin titre the infant's blood shows a stationary or rising titre, treatment should be immediately instituted.

TREATMENT OF CONGENITAL SYPHILIS

It must be proved that the infant is a congenital syphilitic before treatment is instituted. This has been partly discussed above. Further confirming evidence may be found in a dark-field examination of the secretion from the eye, nose, aspirated fluid from inguinal or other nodes, inner wall of the umbilical vein or from mucous patches or other lesions on the body or mucous membrane.

The ideal treatment for congenital infants and very young children consists in the use of the combination treatment, using a total of 150,000 to 400,000 units of penicillin per kilogram of body weight, divided into 60 doses. During the time of administration of the penicillin, the arsenoxide and bismuth routine should be used. See "Treatment of Early Syphilis." The dosage for early treatment should be from 0.005 to 0.01 gram, according to the weight of the infant. Frequent estimations of the serological content of reagins is to be established during the whole course. In these infants the maximum of treatment should be given, and after the 32 weeks of treatment, as used in early syphilis, we advise a total of three years of treatment. This is necessary because the organisms of syphilis have by this time been so deeply seated in the tissues of the infant. A rest of one month should be followed by alternating courses of arsenoxide and bismuth for ten weeks more. It is then well to institute, after a month's rest, a course of neoarsphenamine, weekly injections, one milligram per kilo weight, and bismuth for 10 weeks at least. This gives a total of 62 weeks of

treatment. Treatment after this period should be as indicated.

The aim of treatment in the late congenital syphilitic is the control of symptoms and the relief of manifestations. Serological negativity is hoped for but rarely obtained. In these instances the treatment is the same as that outlined for acquired syphilis of a similar nature, using the same proportion of dosage as one does in the acquired cases. There are several divergences in the congenital from the pattern of that seen in acquired syphilis, all of which take special lines of treatment. Syphilitic eye disease, especially interstitial keratitis, syphilitic disease of the joints, Clutton's joints and saber shins, are practically never seen in the acquired syphilitic. The juvenile paretic and taboparetic have a hopeless future. Only five per cent of our series of 60 cases received any benefit from the most modern of treatment, not including penicillin but including malaria. The juvenile tabetic, on the other hand, has a brighter future. We have cases who are now adults, who seem to be free of all symptoms.

Malaria or heat treatment in combination with other forms of treatment must be used in interstitial keratitis, Clutton's joints, hydrarthrosis and periarthric infiltrations (syphilitic rheumatism.) Penicillin has no place in the treatment of these conditions, and we have given it up entirely. After the use of nonspecific therapy, the course of treatment in these cases remains the same.

In the majority of these cases in which there has been eye, bone or central nervous system involvement, the serological reactions remain positive. We have followed several cases for 30 years, who have had good treatment and observation all that time, who still have strongly positive serological findings.

The latent congenital syphilitic responds to treatment best. In the majority of cases negative serological findings may be secured.

Nerve deafness in the syphilitic rarely responds to treatment.

Cardiovascular syphilis rarely occurs. In an examination of over 100 chests of congenital syphilitics, including chest plate studies and, in many, electrocardiograph readings, no typical syphilitic changes were found.

We have used malaria in approximately 200 cases of congenital syphilis in the past 15 years. It is well tolerated by children and has marvelous results in interstitial keratitis and neurosyphilis other than paresis and taboparesis. For the temporary arrest of symptoms in paresis and taboparesis there is nothing superior to malaria, but, it must be again repeated, the results are only temporary, as many of these cases 10 years after their malaria treatment retrogressed into their original states. Examination of the blood and spinal fluid at this time often shows completely negative findings.

SPECIFIC RULES

1—Every syphilitic individual must have a complete physical examination, including titred serological tests.

2—The serological tests must be used in all hospital patients. They should be used in outpatient clinics.

3—In private practice these tests should be used more widely. They must be used in all cases of pregnancy and with each pregnancy.

4—Penicillin-arsenoxide-bismuth combination is recommended in all cases of early syphilis.

5—In all cases of recurrences of any types of earlier syphilis, heat must be used in combination with arsenoxide, bismuth and penicillin, if penicillin has not been used previously.

6—In syphilis of the central nervous system, paresis, tabes dorsalis (note exceptions)—

a—Malaria and penicillin (no arsenicals or bismuth) are used.

b—Heat cabinet (hot bath) plus penicillin, arsenoxide and bismuth are used.

The follow-up treatment consists of tryparsamide and bismuth (note exceptions.)

7—Optic atrophy. Heat (hot bath or cabinet) together with iodides and bismuth. No arsenicals.

8—Syphilis of the liver, late. Bismuth and the iodides. No arsenicals except in early liver disease.

9—Cardiovascular disease.

a—Penicillin-arsenoxide-bismuth regime followed by a bismarsen in the early disease.

b—Late (with decompensation), bismarsen only.

c—Late (decompensation), treat only the decompensation. When that is controlled, only bismuth and iodides are used.

10—So-called Wassermann fast cases (those who have had more than adequate treatment), suspend treatment and do titred serological tests. In those showing stationary or falling titre tests, no treatment. If units are rising, use further treatment.

11—In all cases of late syphilis, no matter what the involvement, the following procedure is imperative:

a—Spinal fluid tests including total protein

b—X-ray studies of the chest

c—Eye ground examinations

12—It would be desirable to do the above tests in all cases of early syphilis except seronegative primaries, in order to establish a base line for future examinations.

13—Never forget to take into consideration the immunological state of the patient. Active syphilitic

disease in the presence of negative serological tests indicates a dangerous syphilitic disease. The immunological state is at a low ebb. It must be raised—heat, malaria, typhoid, etc.

14—All pregnant women who do have or have had syphilis must be treated during each pregnancy.

15—Penicillin, arsenoxide, bismuth with follow-up treatment is imperative in syphilis of the newborn. It is possible to cure them clinically.

16—Late congenital syphilitics require long and patient treatment. Those with the latent disease may be clinically and serologically cured. In others, control of the disease is sought, usually not successfully.

17—Interstitial keratitis and joint disease in the congenital syphilitic require malaria or heat or both in addition to other treatment.

18—One must have a high index of suspicion of syphilis in all people who have obscure diseases.

19—In all late syphilis of any kind the use of iodine in appropriate doses is imperative.

THERAPEUTIC USE OF CONCENTRATED PROTEINS*

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Proteins are essential to the life of all tissues. Their importance in the maintenance of body metabolism has been well established in the past few years. Man must eat protein foods to replenish the daily wear and tear of body tissues. The body under various conditions and ages requires different amounts of protein to maintain normal nitrogen balance. In disease, injury, and convalescence these requirements are greatly increased. The Council on Food and Nutrition of the American Medical Association has recommended the following amounts of protein as being adequate for the maintenance of nitrogen balance:

Normal adult	1 gram per kilogram of body weight
Infant	3-4 gram per kilogram of body weight
Growing child	2-3 gram per kilogram of body weight
Pregnancy	1.5-2 gram per kilogram of body weight
Lactation	2 gram per kilogram of body weight

Proteins are complex organic molecules, consisting of amino acids linked together. Gastric and pancreatic digestion breaks the protein down through the peptone, proteose, and polypeptide stages to amino acids. They are thus absorbed and transported by the portal circulation to the liver. There a portion of the amino acids is changed into serum proteins, and the remainder, not needed for this purpose, is deaminated and converted into carbohydrate to be used as fuel, or excreated as urea.

Plasma proteins have many functions. They are the carriers of food, hormones, and immune bodies; they help in the production of blood elements; they maintain acid-base balance of the blood; and they serve to replenish tissue protein.

Plasma proteins are of two types: the albumins and globulins. The globulin fractions are fibrinogen and alpha, beta and gamma globulins. Each of these globulins has a specific physiological function. e.g., antibodies in gamma globulin and prothrombin in beta globulin.[1]

Plasma proteins are largely manufactured in the liver,[2] especially albumin and fibrinogen.[3] The globulins may be synthesized, at least in part, by the reticulo-endothelial system.[4] Albumin is regenerated at the rate of about 25 gram per day.[5] This rate of regeneration is not adequate if large amounts of body proteins are being lost. Elman and his coworkers[6] state that a reduction of one gram in the total circulating plasma albumin indicates a loss of 30 gram of body proteins. They suggest that a reduction of albumin from 4.0 to 3.5 gram per hundred cubic centimeters of plasma, in a 70-kilogram man, would represent a loss from the body of at least 510 gram of albumin. Severe depletion of body protein may require a long period of protein therapy to correct the deficit, and the plasma protein concentration may return to normal long before the body deficit of protein is made up.

DETECTION OF PROTEIN DEFICIENCY

The clinical detection of protein deficiencies is difficult, chiefly because clinical signs are absent until the deficit is pronounced, and even then the chief sign is edema, which may be the result of other factors. Detection of protein deficiencies will usually depend on the cause of the deficiency as elicited in the history and physical findings. The following should be considered in the detection of protein deficiency:

1. Optimum weight of patient: Main reliance in clinical work must be placed on a nutritional history. Weight loss is almost always associated with protein loss. Elman[7] stresses loss of weight in evaluating protein depletion. A protein deficient diet must have been inadequate long enough to have exhausted the reserve stores. The quality of proteins in the diet must also be considered. Proteins may be deficient in certain of the amino acids which the body requires, and yet be adequate in quantity. The diet must also contain adequate carbohydrate

*Presented at the Postgraduate Course, University of Kansas School of Medicine, November, 1946.

and fat to prevent the conversion of body proteins to carbohydrates for use as body fuel.

2. Plasma protein level is still our best method of measuring protein deficiency. However, a measurable fall occurs only after a pronounced loss of body protein. Protein loss from the body is reflected in the plasma protein as soon as the reserve stores of protein are depleted.

3. Plasma albumin level first becomes reduced in protein deficiencies because it has about five times the osmotic effect of globulin, and it is regenerated more slowly.

4. Plasma volume: Interpretation of plasma protein levels is often difficult unless the plasma volume is known. Patients with plasma concentrations, such as those with dehydration, severe burns, etc., may appear to have normal plasma protein levels, but when solutions of electrolytes are administered the protein concentrations are found to fall to low values.

5. Nitrogen intake and output: A negative nitrogen balance exists when excreation of nitrogen is greater than the amount consumed.

6. Protein loss from any cause should make one suspect protein deficiency.

ADMINISTRATION OF PROTEINS

Protein deficiencies are best treated by one of the following methods of administration:

1. High Protein Diet: Food by mouth is the most effective route of administration of protein. However, many times this cannot be accomplished because of associated anorexia, or disturbances of the gastro-intestinal tract. The sick patient will seldom take more than 100 gram of a high protein diet per day. This amount is seldom adequate if the deficiency is marked. The high protein diet should always be supplemented with vitamins.

2. Parenteral Proteins: Parenteral proteins must be given in very large amounts to be effective in restoring nitrogen balance. This procedure may be life saving at times, especially if the patient is unable to take proteins per orum. Parenteral proteins are of four main types:

a. Human Plasma: Human plasma is an excellent source of protein, but one unit furnishes only about 12 to 15 gram of protein. Many units are required to restore the total body protein loss.

b. Protein Hydrolysates and Concentrates: Parenamine and Amigen have been used quite extensively for parenteral replacement of proteins. They are quite satisfactory, provided they are given slowly, and the liver is capable of deaminating them so that they can be utilized.

c. Crystalline Amino Acids: This should be the ideal preparation to give for the parenteral replacement of proteins. However, the expense and availability of such preparations make their use almost prohibitive at the present time.

d. Human Albumin: Human albumin with low salt concentration has been used to some extent and is of great value where albumin is the principal plasma protein being lost. It is not generally available.

3. Protein Concentrates (Oral): Protein digests or hydrolysates of casein and yeast are excellent for supplementary feedings, if the patient will take them. Their use may facilitate the giving of as much as three or four gram of protein per kilogram of body weight. Much of the unsavory taste can be overcome by incorporating them into breads, cake, sandwich spreads, desserts, jello, hot cereals, bouillon, soups, and milk. Three or four feedings of 25 to 35 gram each can be given per day.

Many such preparations are on the market. They vary considerably in per cent of protein and taste. Some of these preparations are: Dietene, Aminoids, Lactamin, Cholamin, Folamin, and Protolysate.

CAUSE OF PROTEIN DEFICIENCY

1. Insufficient Intake: The most common cause of protein deficiency is inadequate diet. This may be due to poor economic status, or poor knowledge of diets. Poor quality proteins may also be a factor. At least eight of the 22 amino acids are necessary for the maintenance of a nitrogen equilibrium, and since these essential amino acids cannot be synthesized by the body, they must be taken in the diet.

2. Impaired Digestion and Absorption: Impaired digestion and absorption occur in the presence of diseases of the stomach, intestine, pancreas, and liver.

3. Inadequate Synthesis of Plasma Proteins: Manufacture of plasma and body proteins depends upon an adequate and proper intake of proteins, as well as a proper functioning liver capable of the synthesis of plasma proteins.

4. Increased Breakdown of Body Stores: Depletion of body stores of protein by febrile disease, increased metabolism, and chronic exudative processes is a frequent cause of protein deficiency.

5. Excessive Loss of Proteins: Excessive loss of protein through any cause such as the nephrotic syndrome, ascites, hemmorrhage, burns, etc., is a common cause of protein deficiency.

SPECIFIC INDICATIONS FOR HIGH PROTEIN INTAKE

I. *Kidney Diseases:* Patients with kidney disease need proteins the same as normal individuals, especially if they are losing large amounts in the urine. They should also have sufficient carbohydrate to assure that they will not have to use their own proteins as body fuel. The loss of large amounts of protein in the urine with resultant reduction in serum albumin level is a major factor in the pro-

duction of the protein deficiency seen in patients with kidney disease.

Patients with hypoalbuminemia and proteinuria require the optimum protein intake of normal individuals, perhaps higher. When uremia, hypertension, and heart failure complicate the picture, the protein need is less. If anorexia, nausea, and vomiting are present, it may be necessary to resort to parenteral proteins and glucose to maintain a nitrogen balance.

II. *Liver Disease:* Patients with disease of the liver are unable to maintain normal serum albumin levels. Attention has been directed to the importance of a high carbohydrate intake for increasing liver glycogen, and thus preventing hepatic damage. Recently Ravdin and co-workers[8] have demonstrated that protein is of more value than carbohydrate in protecting liver cells from damaging agents. The sulfur-containing amino acids, methionine and cysteine have been emphasized as the particular components of protein which are effective in the protection of liver cells.[9]

Patients with cirrhosis of the liver and hepatitis may not willingly ingest high protein diets. The acutely ill hepatitis patient may even require parenteral fluids and plasma.

Stare and Thorn[10] have recommended the following regime for patients with hepatitis and cirrhosis:

1. A daily intake of 75 to 150 gram of protein, 300 gram or more of carbohydrate and 50 gram of fat. In general, it is possible to consume 100 gram of protein with three daily meals. The remainder of protein may be provided in supplementary high protein feedings.

2. Approximately 10 mg. of thiamine, 10 mg. of riboflavin, 250 mg. of niacin amide acid, 500 mg. of ascorbic acid are given daily during the first three or four days. Later the dosage of all these vitamins may be reduced to approximately one-fifth of these quantities. Choline chloride or methionine may be given in enteric capsules 1.0 gm. twice a day.

3. Intravenous administration of proteins, carbohydrates, and water soluble vitamins may be indicated, depending on the condition of the patient.

III. *Gastro-intestinal Disease:* Gastro-intestinal malfunctions are the chief causes of protein deficiency. Disturbed function of the gastro-intestinal system from gastric or duodenal ulcer, chronic pancreatic disease, enteritis, ulcerative colitis, diarrhea, and draining fistula are almost invariably associated with lowered proteins.

CoTui[11] has reported excellent results in the treatment of peptic ulcer patients with protein hydrolysates. Patients were given 5 gm. of Amigen and 5 gm. of Dextri Maltose per kilogram of body weight daily in 8 or 9 two-hourly feedings. No antiacid or antispasmodics were used.

IV. *Convalescence and Infection:* Rapid loss of serum and tissue proteins is noted during the period following trauma, severe infections or operations. Elman[12] and CoTui[13] have presented convincing evidence that convalescence can be greatly shortened if these protein deficiencies are made up.

V. *Diabetes Mellitus:* In poorly controlled diabetes, large quantities of nirtogen are excreted in the urine as a result of glyconeogenesis. Large protein deficit may occur. Ample protein, about 1.5 gram per kilogram of body weight, is required for the first few weeks of therapy, after which one gram should prove ample.

VI. *Thyrotoxicosis:* The protein need is greatly increased in the patient with thyrotoxicosis because of great increase in metabolism. Weight loss may be extreme. The loss of protein is largely responsible for the muscle weakness. A high protein, high caloric diet is indicated in conjunction with antithyroid drugs, or surgical treatment.

VII. *Hypoglycemia:* Spontaneous hypoglycemia is quite frequent, especially in the neurasthenic fatigue patient. The author has found the use of a diet high in protein and low in carbohydrate, with no free sugar, of great benefit to these patients. Portis[14] has reported similar results.

VIII. *Miscellaneous:* Anemia, exudative skin disease, hypoproteinemia (dietary), anorexia nervosea, pregnancy, and lactation are all causes of protein deficiency, and should be given the benefit of a high protein diet.

IX. *Surgical Cases:* The importance of protein in wound healing, resistance to infection, reduction of edema, prevention of hemorrhage, and prevention of liver damage makes the question of protein need of paramount importance in surgery. Hypoproteinemia is common in the gastro-intestinal surgery patient. This may lead to edema of the gut and delayed healing of anastomoses, etc. CoTui[15 16] points out that the protein loss in convalescence from operation varies directly with the severity and duration of the operation. These patients should all have high protein intake to hasten their convalescence.

CONCLUSION

In conclusion it can be stated that protein digests and hydrolysates, although not perfect, have furnished a means whereby patients, who require more proteins than can be fed in the ordinary diet, can be given adequate supplementary feedings of protein that is predigested and readily absorbed.

Most diseases associated with weight loss or evident loss of protein should be suspected of protein deficiency and are deserving of a thorough investigation. However, if investigation is impossible, a

trial with a high protein diet is definitely justified. It can do no harm and more often than not, will be a benefit.

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BRUCELLA MENINGO-ENCEPHALITIS TREATED WITH STREPTOMYCIN

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The purpose of this paper is to present a case of Brucella meningo-encephalitis which was treated with streptomycin and recovered.

Reviews of the literature on Brucella meningitis were made in 1934 by De Jong[1] and in 1937 by Black[2]. These were of necessity repetitious. Each of the above observers presented a new case. Since these publications very little has been forthcoming.

Harris[3] published a most interesting report of a fatal case of Brucella invasion of the central nervous system. This patient was a native of the middle west and had been a foreman in a packing plant. He had had Brucellosis for a rather long time, being discharged from service in the Navy because of the disease. In retrospect, the first suggestions of central nervous system involvement, it would seem, could be dated previous to his discharge from the Navy which was February 4, 1942. By March 20, 1942, he had suffered severe brain episodes which were thought to be a brain tumor. His course was stormy. He was hospitalized on March 20, and biopsy was done on April 9, 1942. He expired on the same day. A most instructive pathological report was given, which for obvious and satisfying reasons we are not able to present in our case.

The available literature on central nervous system manifestations of Brucella origin is indeed scant and, so far as known, no previous report of treatment of this disease with streptomycin has been made.

CASE REPORT

J. M., a male, aged 54, was admitted to Christ's Hospital, May 6, 1946. The history of this illness dated back about two weeks, when he experienced a sudden, very severe headache. The pain was continuous. It was originally of frontal distribution spreading over the top and back of the head. He was seen by a competent rhinologist because the patient concluded he must have "sinus trouble." No sinus pathology was recognized, and at the time of this examination the occular fundi were studied and a note made that there was an absence of the normal physiological cupping of the disc. The pain continued, and within three or four days vomiting of projectile type occurred with the continuation of the headache. On about the 12th to the 14th day of the disease, the patient "began to act and talk out of his head." He was then brought in for hospitalization.

PAST MEDICAL HISTORY: Ordinary diseases of childhood. For many years has had migraine headaches, with considerable regularity. Twenty years ago he had a thoracoplasty for what was said to be tuberculosis. At age of 20 years he had mumps with orchitis. There was no history of even slight head injury at any time.

FAMILY HISTORY: Noncontributory except possibly that one brother died of "lung trouble."

At the time of admission to the hospital the man showed the following physical findings:

An adult male about 71 inches tall; spare, but fairly good musculature. He was arousable and responded to questions incoherently. He was completely disoriented. His attitudes and answers were silly and facetious, aside from being irrelevant. When

asked about location of head pain, he did give some idea that he had pain in the frontal areas by passing hand over forehead saying, "here."

His general physical examination, except for the chest and pulse, was negative. The pulse rate was 46.

The patient was not cooperative but diplopia at 16 to 20 inches was discovered. He could point to a pencil when right eye was covered, but when left eye was covered he said, "It's right down here on my nose," but could not point to the pencil.

Right pupil was larger than left, but not fixed. Both pupils responded to both light and accommodation and were regular. All the eye muscle movements were normal; no nystagmus. The occular fundi showed moderate congestion of the veins and definite choking of both discs, two or three diopters elevation being measured.

There was slight if any nuchal rigidity and certainly no occipital pain or tenderness on pressure.

The other cranial nerves were all intact. No weaknesses of the motor system were present.

All tendon reflexes were thought to be about normal, the patellar perhaps being slightly sluggish. The left plantar response was equivocal at first, later approaching the flexor type. The abdominal reflexes were slow and soon fatigued. There was no clonus. A mild ataxia noted left hand. During the early examinations he was asked to read a label on a box. He repeated the first word three times (there were three words) and was quite certain that this was what was printed on the box. No other response could be gotten.

On admission the laboratory findings were: Urine negative; Blood: Hb. 13.5 gm. RBC 4,500,000; WBC 7,400; Poly. 76; Lymph. 124; Urea 40.12; Urea N. 18.75.

When first seen he was given rather generous amounts of hypertonic dextrose, which gave a great deal of comfort. He became more quiet and responsive but was still confused, silly and disoriented.

On May 9th first spinal puncture was done. The fluid was colorless; 420 cells; Pandy 4+. X-rays of skull were negative. The pulse had risen to 78 per minute and the blood pressure was 126/76. His condition was more favorable.

A tentative diagnosis of frontal lobe tumor was made.

A neurological consultation was requested. The report was as follows:

"Patient interviewed and neurological examination done as far as possible. History obtained from patient is unreliable, contradictory and there were many irrelevant and inappropriate answers to questions as well as silly and facetious replies. Much material appears delusional and he is obviously confused and disoriented in all spheres. Patient cooperated poorly at times and sensory examination is entirely unreliable as he refers to pin prick and dullness to all degrees as 'sharp.' He refers to tuning fork as 'pressure' and there is much perseveration of replies even when stimulus is changed. Motor status shows no remarkable change. Muscle strength and tone appear good. There is no dysmetria or ataxia or decomposition of movement with use of hands. No tremors noted. Much facial grimacing is noted. Cranial nerves are negative as far as can be reliably determined except for the following: (Pupils dilated slightly from cycloplegic)

"(1) Fundi not satisfactorily visualized because of patient's lack of cooperation but there appears to be blurring of disc margins and mild choking with venous engorgement but no hemorrhages.

"(2) Questionable diploplia most of the time is contended in right temporal region of vision, but patient's answers are changeable and unreliable.

"All deep reflexes are active and equal. Abdominals are sluggish. No pathological reflexes elicited. No nuchal rigidity. Denies headache as such but claims his forehead hurts off and on. Duration or character of present illness can not be determined from patient. While nurse's notes do not indicate involuntary soiling with urine and feces, sheet is wet from urine and patient admits he urinated but can give no reason for not using urinal.

"Clinical picture indicates an acute organic psychosis apparently relating to headache, vomiting, confusion, and sensorium defects. Lack of accurate history and spinal fluid data make the etiology uncertain but the present preponderance of evidence points to an expanding intra-cranial lesion—most probably a frontal lobe tumor. Would like to check fundi again, but patient should be under neurosurgical observation with consideration of ventriculography when feasible."

Neurosurgical consultation was asked on May 11, and the report was as follows:

"Patient is comfortable in bed and at the present time has no complaints. He is somewhat confused for time and during testing shows definite cerebral retardation; he is also euphoric. He appears as old as his stated age and shows no evidence of recent weight loss.

"Examination of the head shows no localized area of tenderness to percussion; no bruit audible. There is some nuchal resistance to acute flexion of the head onto the chest. Cranial nerves—the fundi show an obscuration of the disc margins with an absence of the cup, and is suggestive of possible early chronic papillitis—with no measurable papilloedema; the remainder of the cranial nerves are intact.

"He shows no motor weakness nor sensory deficit in either of the four extremities; it is to be noted that he had slight difficulty in recognizing objects placed in his hands without seeing them—this may be due to the callouses which he has on his palms and fingers. Position sense is normal. Deep reflexes are all physiological—a little less active in both upper extremities as compared to the lower but bilaterally equal; no Hoffman. The abdominal reflexes are only present in both upper quadrants and easily exhaustible; none obtained in both lower quadrants; the cremasterics are sluggish and equal; the plantar responses are bilaterally flexor. He has no Kernig's signs.

"Coordination is quite well performed—but it is to be noted that he was a little less accurate in the finger to nose test with his right hand and with the right heel to knee test as compared with the opposite side.

"Opinion: The diagnoses to be entertained here are a spontaneous subarachnoid hemorrhage or space occupying lesion. With the history and his present apparent improvement there is less liklihood of the latter—but this must be ruled out as he may have supratentorial lesion possibly in his prefrontal region. The absence of any definite signs of increased intracranial pressure at the present time permits further clinical observation and the pursuance of other investigation."

The patient had been mildly disturbed but could be controlled by very gentle pursuasion and sedation. He was still quite silly but more alert. The spinal drainage seemed to produce some relief. He was less disturbed after each drainage. On May 11, patient had an electroencephalographic study. The report was as follows:

"The record is basically flat and disorganized. It contains no alpha-activity at any time. No spikes appear. There are many muscle-current artifacts introduced by patient's restlessness. Long bursts of 50 to 75 microvolts 3 to 7 c.p.s. activity appears, symmetrically; most of this activity is picked up in the frontal and central areas.

"IMPRESSION: ABNORMAL EGG, suggestive of diffuse cerebral pathology involving the midbrain."

On May 13, 1946, the spinal fluid study was again made. There were 600 WBC in a clear fluid; 408 mgm. per cent protein. At this time the original pressure was but 80 mm. CSF. After withdrawal of 6± cc, the final pressure was 72 mm. CSF. The Quackenstebt test was positive. After this spinal puncture today the patient was more comfortable, as he says 'less nervous.' There was no significant change in the blood pressure. On this same day the neurological manifestations were unchanged. The discs were flat but the margins were not clear cut. The nerve heads were lighter than normal. A marked irregularity was seen on the nasal side of the left disc. The patient was much more alert. He was out of bed and moving about the ward. His gait at this time was not atoxic. Rhombergism was not present. On this same date a slight elevation of temperature was observed. Right lateral stereogram of skull made on this date was essentially negative.

On May 15th the spinal fluid was studied in another laboratory. The fluid was clear though slightly xanthochromic. There were 302 cells counted; 96 per cent lymphocytes and 4 per cent polys. Eight red cells were found. The protein was 62 mgm. per cent. (Dennis-Ayre method.)

May 17: BP 122/65. For the past two days the patient has been clearer. His responses are more lucid and he has some idea that he has been sick. He was not completely oriented and still somewhat confused. On this date the neurologist made the following report:

"Patient clear, cooperative, and says he is his 'old self,' and now realizes that his illness has been previously minimized by himself. Insight good for age and status. Neurologic examination essentially negative except for slight haziness of disc margins and shallow cupping. This may be of no significance at this time. Believe patient may be discharged to carry out (moderate) activities at home with moderation in all of them and return in two months for a recheck.

"FINAL IMPRESSION: Acute organic psychosis associated with old spontaneous subaranchnoid hemorrhage."

On May 18, patient was fairly comfortable. BP 120/70, but rectal temperature observed 101.4°F. at 8 P.M. For the past four days there has been a slight increase in temperature as high as 99.6° to 100.6°F.—for which no cause could be found. The eye grounds had approached more nearly normal except for what was considered to be an increased congestion of the veins of the left retina. The disc margins are less obscure though definitely *NOT* sharply defined.

Spinal fluid study showed original pressure of 240-250 mm. CSF. Seven cc. of slightly xanthochromic fluid was withdrawn with a final pressure of 150 mm. CSF.

May 19: For no particular reason other than the low grade fever and because of the presence of Brucellosis in the middle west an agglutination test of the blood with Brucella abortus was done. This was found to be "4+" in 1:320 dilution. At this time the possibility of meningo-encephalitis of Brucella origin began to be thought of albeit vaguely. There

was definitely no history of any such infection with any characteristics remotely suggesting the disease.

May 21: Blood picture showed Hb. 13 gm.; RBC 4,700,000; WBC 7,000; polys. 62 per cent; lymph. 35 per cent; mono. 3 per cent.

May 22: Spinal fluid pressure noted to steady at 204. Nine cc. were withdrawn. He had visited in the ward and was apparently quite comfortable. Urine negative. Diagnosis of Brucella meningoencephalitis made. Further inquiry as to possible source of infection yielded no information.

May 24: Spinal fluid pressure was 250-270 mm. The fluid was clear; contained 100 RBC, and 450 WBC; CSF protein 292 mgm. per cent; sugar 26 mgm. per cent; Agglutination positive for Brucella abortus 1:64.

May 25: Sulfadiazine started, 8 gm. daily.

May 30: Sulfadiazine resumed and taken without complaint. Since the first sulfadiazine the temperature ranging from 98.6° to 99.6°F.

May 31: Today complained of pain of moderate degree in back of neck. Some nuchal stiffness and Kernig's sign somewhat suggestive though not conclusive.

Spinal fluid: Pressure 470 mm. Agglutination of Brucella abortus Huddelson's Antigen 1:1000. Lederle Antigen 1:2400; cells: 10 RBC and 620 WBC; polys. .4 per cent; lymph. 97.6 per cent; endotho. 2.0 per cent; protein 372 mgm per cent; sugar 52 mgm per cent. Animal innoculations today with CSF negative. Blood sulfadiazine level 6.8.

June 3: He ate well and was quite clear mentally. Spinal fluid studies gave the following information: The first pressure varied between 190 and 230 mm.; after the removal of approximately 15 cc. fluid, the pressure varied between 114 and 123 mm. The laboratory reported 2200 RBC; 5700 WBC with 100 per cent lymphocytes. Sugar 35 mgm. per cent; protein 372 mgm. per cent. Brucella agglutination 1:1000.

June 4: Has been quite comfortable. Visiting, smoking, and eating well. His temperature (rectal) did not go above 100°F. On this date a generous amount of streptomycin was received from Dr. Chester S. Keefer. It was suggested that the patient be given 4 gm. of streptomycin each 24 hours by intramuscular route and 50,000 units intrathecally each day. The sulfadiazine was discontinued and four doses of streptomycin were given totaling 2.5 gm., by intramuscular route. Blood agglutination Brucella abortus, 1:3200.

June 5: The intramuscular medication was continued giving 0.5 gm. every 3 hours in 5 cc. of distilled water. At 9:30 A.M. 50,000 units of streptomycin in saline was given intrathecally. By noon his temperature had risen to 101.6°F. He was disturbed and quite confused and refused food. By 4:00 P.M. his temperature was 102.4°F., pulse 112, and respiration 28. He complained of a frontal headache. He appeared quite ill and almost stuporous. When aroused he would answer questions listlessly and return to his stuporous state. The temperature remained at 102°F. all the remainder of the day. The dose of streptomycin was reduced to one-half and given at the regular intervals. Total streptomycin for the 24 hours was 3.25 gm. intramuscularly and 50,000 units intrathecally. He was given 500 cc., 10 per cent saline intravenously.

June 6: This morning patient appears slightly better though he spent a fretful night. The reduced dose of 0.25 gm. was continued today on regular schedule. Complained of pain at site of intramuscular injections. There have been no visual disturbances, no vertigo but he was nauseated and vomited on two occasions. Total streptomycin 2 gm. intramuscularly plus 50,000 units intrathecally. Temperature: low at 12:00 midnight 99.6°; high at 8:00 P.M. 102.4°F.

June 7: Today he is more comfortable. He has rested well during the night. Still complains of pain in buttocks from the injections. From 9:00 A.M. on, he was given the full dose of streptomycin, rather than the half dose of yesterday, intramuscularly with 50,000 units intrathecally. Spinal pressure: initial pressure 78-84 mm., final pressure 40 mm. Temperature rose to 103° at 8:00 P.M. on this date; the low being 100° at 8:00 A.M. and 12:00 noon. Streptomycin, 4 gm. intramuscularly and 50,000 units intrathecally, was given.

June 8: The highest temperature recorded was 102°F. rectally. He was not comfortable and more irritable than he had been for some time. The spinal fluid pressure was initially 96 mm. It was clear but there were 350 RBC and 250 WBC counted with 90 per cent lymphocytes. Sugar 50 mgm. per cent. Chlorides 644 mgm. CSF agglutination, Lederle antigen 1:1280, Colloidal gold 5555532110. The usual 4 gm. of streptomycin were given plus 100,000 units intrathecally.

June 9: Highest temperature 101.6° (rectal); lowest 100°F. Urine negative. Spinal fluid pressure 110-114 mm. Cultures of blood and spinal fluid grown under 10 per cent CO_2 as well as animal innoculation have all been negative. Four gm. of streptomycin were given today intramuscularly. This was the last dose of the series to be given by intramuscular route. A total of 19.47 gm. of streptomycin was given intramuscularly. Today he was given 100-,000 units intrathecally. He said that he felt more "nervous" than at any time since he came to the hospital. He says that he feels more "clear" than at any time and passes hand across his forehead as he

has done on numerous previous occasions. As per schedule the intramuscular medication was discontinued.

June 11: 75,000 units of streptomycin were given intrathecally. Patient comfortable. He is up and about the ward. Hb. 13.5 gm.; RBC 4,200,000; WBC 4000; polys. 60 per cent; lymph. 38 per cent; mono. 2 per cent. High rectal temperature 100°; low 99.8°F.

June 13: The initial CSF pressure 180 mm.; final pressure 74 mm.; 10 cc. fluid removed. Protein 239 mgm. per cent; chlorides 644 mgm. per cent; agglutination 1:1280; Colloidal gold 55555-32110.

June 15: Hb. 14.5 gm.; RBC 4,800,000; WBC 10,350; polys. 56 per cent; lymph. 40 per cent; eosin. 4 per cent. Spinal fluid pressure 220 mm. He says he is "much better" and that he can walk without "swimming" and that he had gotten better in the past eight days. This dates back to the third or fourth day of streptomycin therapy.

June 19: The patient is quite comfortable. Highest temperature was 100°F. The laboratory findings were: CSF initial pressure 220 mm., 26 cc. removed. Final pressure was 30 mm. Agglutination: Brucella 1:400; tularemia negative; protein 304 mgm. per cent; sugar 34 mgm. per cent; WBC 188; RBC 15; lymph. 85 per cent; polys 15 per cent. Blood agglutination: Brucella 1:500; tularemia negative.

The neurologist's note at this date is as follows:

"Records reviewed and patient interviewed and re-examined. There is agreement on course of events and response to chemotherapy. Clinical and laboratory findings unquestionably support the diagnosis of May 22 of Brucellosis meningo-encephalitis. Aside from general weakness and local soreness from spinal taps and intramuscular injections, patient feels well. Disc margins are much improved over previous obscuration, although left appears more blurred than right. Patient is anxious to return home. E.E.G. should be repeated as soon as chemotherapy is completed for comparison with original tracing."

June 20: Condition same. Hb. 13.5 gm.; RBC 4,680,000; WBC 8,000; polys. 53 per cent; lymph. 44 per cent; mono. 1 per cent; eosin. 2 per cent.

June 21: A repeat of the electroencephalographic study was made which was both interesting and enlightening. The summary of E.E.G. is as follows:

"This is an extremely flat record containing little alpha activity. It is symmetrical throughout. Occasional short runs of 5.7 cps activity appear in all leads. Hyperventilation increases the voltage and amount of the slow activity. IMPRESSION: Borderline Abnormality."

June 23: The patient received no streptomycin. He was permitted to go home, and return in evening. Temperature did not rise above normal.

All streptomycin was discontinued from June 22 on.

June 26: Laboratory findings were: Blood: Hb. 13.5 gm.; RBC 5,240,000; WBC 6400; polys. 69 per cent; lymph. 30 per cent; eosin. 1 per cent. Spinal fluid: WBC 115; polys. 9 per cent; lymph. 91 per cent; protein 400 mgm. per cent; sugar 39 mgm. per cent; colloidal gold 5555532110. Agglutination: Brucella 1:160. From the second laboratory a protein content of a portion of this same specimen of fluid was reported as containing 165 mgm. per cent, which was an increase compared to the previous reports from this same laboratory.

The patient did, however, complain of some pain in his eyes. This apparently was mild and something which had been noticed for the last several years. Even though it had been spoken of during his hospitalization, nothing could be found to account for it. He was discharged to go home to return in one week for a recheck.

July 5: The patient returned at which time there was no change in his neurological picture. The spinal fluid pressure was 350 to 400 mm. of fluid. Spinal fluid: RBC 10; WBC 125; polys. 12 per cent; lymph. 88 per cent; protein 264 mgm. per cent; sugar 49 per cent. Agglutination 1:200. Aside from a tremor of the hands which was not pronounced, the patient was quite comfortable. On the following day a spinal drainage was done and a spinal fluid pressure of 240 to 250 mm. was present.

July 17: Patient was seen at which time said he felt so well that he thought of not coming in. Spinal fluid study made. Initial pressure 350 mm. CSF; final pressure 60; 25 cc. was removed. The cell count was 85; lymph. 98 per cent; polys. 2 per cent; protein, hospital laboratory, 352 mgm. per cent; the second laboratory using the Dennis-Ayres technique, 210 mgm. per cent.

COMMENT

This case is presented as a case of meningo-encephalitis of Brucella origin, knowing that one definite objection to this diagnosis will be that the organism was not recovered either from culture or by animal innoculation. It is felt, however, that unless some other phenomenon produces the high titre of agglutinins for the Brucella organism, this diagnosis is valid.

Another and most interesting sidelight is the difference in the cerebro spinal fluid protein. Estimations from three different laboratories on the same specimens of fluid—two sources being considered in this report. The need for standardization of cerebro spinal fluid protein estimation would seem to be indicated.

Our case as well as all others herein referred to, should direct the attention of observers toward the minute study of the cerebro spinal fluid in all cases of Brucellosis presenting any symptoms whatever referrable to the central nervous system such as headache, vertigo, delerium, etc.

To evaluate a therapeutic procedure on the basis of one case would be silly. Being one case specific and as objective as possible, we will say that the value of streptomycin in the treatment of this one particular case of Brucella meningo-encephalitis was definitely of value. When the patient, as mentioned above, is asked when he noticed a marked improvement and, unguided, dated his improvement from the second day of the use of the streptomycin, it would appear that this information could be used at least as strong presumptive evidence of benefit. This is in spite of the fact that the first 24 hours of streptomycin therapy left the patient only a deficit in comfort and well being.

None of the specific biological therapeutic modalities were used in this case because of the fear that focal specific reactions might occur. These have been used in apparent benefit but were eschewed by us because of their, at least theoretical, hazards.

No comment can be made on the maintained elevation of the spinal fluid pressure and if possible this will be followed over a period of time. It cannot be felt that the irritation from the streptomycin therapy was wholly responsible for the continued elevation of the CSF pressure but it is certain that this was a factor. The studies of the fluid certainly suggest that the trauma done by the streptomycin was minimal if the cell counts can be considered as an index of irritation and these counts compared to the counts subsequent to the use of air, serum, etc.

The colloidal gold reading unfortunately was not done before the beginning of the streptomycin treatment but its constancy through 13 days is interesting.

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Special Train to A.M.A. Meeting

The American Medical Association centennial celebration will be held at Atlantic City, June 9-13, 1947. This will be the largest and most important A.M.A. convention of all time. The scientific program will include not only recognized specialists of the United States but also speakers from the entire world. Exhibits and all other events are scheduled to be in keeping with the memorable occasion.

The Kansas Medical Society is cooperating with the Oklahoma State Medical Association in sponsoring a special train to Atlantic City. Present plans include a vacation trip for those who desire to remain a few days at the close of the meeting. A tentative itinerary includes a boat trip to Boston, a visit in New York, a scenic ride through the White Mountains of Vermont, and stops at Montreal and Quebec.

This will be an all-expense tour covering all costs, including hotels, taxi fares, even tips, except meals. Reservations at Atlantic City and at all stop-over points will be made for all passengers on the train.

Complete details will be mailed to each member of the Society, but those doctors planning to attend the A.M.A. convention might consider now the advantage of traveling with a select group in the finest of accommodations at low cost. Passengers will consist of doctors from this area and their families, all combining a trip to the A.M.A. meeting with a completely restful and pleasant vacation.

Standards of Construction Established

Standards of hospital construction and equipment, required under terms of the Hospital Survey and Construction Act, were recently drafted by the Office of Technical Services, Division of Hospital Facilities, U. S. Public Health Service, and will apply to all projects to be built with federal assistance under this legislation.

The standards were reviewed and approved by a committee from the American Institute of Architects and by the Federal Hospital Council and will be submitted to the Surgeon General and the Federal Security administrator before they are published and made available to persons interested in the program. It is hoped that they will be released within the month.

The established standards will constitute minimum requirements considered necessary to insure properly planned and well constructed hospitals and health centers, and will form a basis for the development of higher standards.

No attempt was made to make the standards coincide with the local codes and regulations of the various states, but strict compliance with all local regulations will be required.

In general the standards fall into five classifications: site, architectural, structural, mechanical, and drawing and specifications. The architectural standards cover the following types of projects: general, tuberculosis, mental, psychiatric and chronic disease hospitals; nurses' homes; schools of nursing; public health centers, and state public health laboratories.

Mississippi Valley Essay Contest

The seventh annual essay contest sponsored by the Mississippi Valley Medical Society will be held in 1947, and a prize of $100, a gold medal, and a certificate of award will be given the author of the best unpublished essay on any subject of general medical interest. Contestants must be members of the A.M.A. and residents of the United States. The winner will be invited to present his essay before the annual meeting of the Society at Burlington, Iowa, October 1-3. Complete information on the contest may be secured from the secretary of the Society, Dr. Harold Swanberg, 209 W.C.U. Building, Quincy, Illinois.

CANCER OF THE STOMACH

More people die of cancer of the stomach than of cancer of any other single organ. Approximately 16 per cent of all cancer deaths are due to cancer of the stomach.

Untreated cancer of the stomach leads to death in three to six months from the time the diagnosis is made.

Radical excisional surgery leads to cure in 50 per cent of the cases in which the growth appears confined to the stomach at the time of the operation. Including the cases in which there is regional lymph node involvement, only 20 per cent survive 10 years.

At the present time, however, 50 per cent of cases are clinically inoperable when the diagnosis is made, and of the remaining 50 per cent subjected to exploration not more than half are found to be resectable.

Early diagnosis and early radical resection give the only hope of definitive cure.

All individuals with unexplained symptoms of indigestion which persist longer than ten days should be subjected to thorough clinical investigation including laboratory, X-ray, and gastroscopic examinations.

All individuals, in whom the diagnosis of gastric ulcer is made, who do not show X-ray evidence of healing after four weeks of good medical management should have surgical intervention.

Prepared by Committee on Control of Cancer

PRESIDENT'S PAGE

To the Members of the Kansas Medical Society:

As a result of a conference between your Committee on Veterans Administration Affairs and officials of the Veterans Administration, a new agreement becomes effective on January 15. In the future fee designated physicians will perform services for the Veterans Administration under the following simplified regulations.

The program regarding examinations for compensation purposes is virtually unaltered except that all authorizations for examinations will be made by the medical coordinator at Topeka. Examinations should be completed within 10 days and returned to the Topeka office. Those held to be inadequate for rating purposes will be submitted to the medical society Committee on Veterans Administration Affairs for disposition.

Authorization for treatment will be received through the medical coordinator at Topeka upon request in writing or, in cases of emergency, by telephone. Statements for services rendered will be sent to the Topeka office. Veterans appealing directly to the regional office for medical care may be assigned to a fee designated physician for treatment. In these instances written authorization will still be received through the Topeka office but treatment may be started at the request of the regional office. During hours when the office of the medical coordinator at Topeka is closed, physicians may request emergency authorization through the regional office of the Veterans Administration.

In general, the new agreement will provide fewer examinations but more treatment cases for Kansas physicians. It also provides, with the exceptions noted above, that all contacts between fee designated physicians and the Veterans Administration will be channeled through the medical coordinator at Topeka. It is hoped that this simplified program will eliminate difficulties that have been experienced in the past and that now the Kansas plan may operate more to the satisfaction of our members and to the greater benefit of the veteran.

President

EDITORIALS

The Use of Federal Grants for Health Purposes

Acceptance and distribution of federal public funds provides material for active discussion on almost any occasion. It became the subject of long deliberation by the Kansas State Board of Health and resulted in a resolution that will be of interest to every physician in the state. This resolution marks the beginning of a new era in public health planning.

Recall that the Congress has recently made many appropriations for disease control and has distributed these funds through state boards of health. Kansas at present receives large annual grants specifically assigned for the control of certain diseases such as tuberculosis, cancer, venereal disease, etc. Additional funds are disbursed through the United States Children's Bureau for maternal and child welfare. If this trend continues, there will apparently be even greater federal participation in local health activities in the future than there is at present.

This also involves greater federal control since appropriations are always limited by regulations that are set forth in Washington. Accepting federal money means also accepting federal control. For the most part these regulations are benign. By following the whims of whoever makes the regulations, they can come into serious conflict with local customs, as witness the administration of the EMIC program for example.

If the Kansas State Board of Health wishes to regain its autonomy, the proportion of local health money must be increased in relation to federal grants. Fortunately, this can be accomplished without sacrificing activities or budget reductions. The Board of Health in its recent far reaching decision has concluded that primary responsibility for public health in a community rests with the residents of that community. Aware that local and county governments can not always maintain an adequate health service, the State Board of Health is ready to assist where needed. Then after local and state resources have been exhausted, and then only, will financial aid be sought from the federal government.

Whatever else is accomplished by this resolution, or whatever faults it contains, this is a step toward returning health responsibility to the people of the state. It does not eliminate the use of federal money but provides for its acceptance in a logical manner and in general probably will provide a more adequate health service for the people of Kansas than has been previously received. The resolution is printed below.

"Inasmuch as it seems advisable for the Kansas State Board of Health to adopt a general policy with reference to the use of federal grants in aid to the State for health services, be it resolved:

"1. It shall be the general policy of the Kansas State Board of Health to encourage and insist upon all counties utilizing their entire tax levy authorized by law for health services before either state or federal financial support should be made available.

"2. Be it further resolved that the Kansas State Board of Health continue its policy of encouraging the establishment of full time county or district health units in order to facilitate the administration of public health services in a county or district health area.

"3. When state funds are *not* available for that service, it shall be the general policy of the Kansas State Board of Health to accept federal money for grants in aid to the state for health services when the needs of such funds are definitely established.

"4. Federal grants in aid will only be accepted by the Board for disbursement when the regulations accompanying them do not conflict with the laws of the state or the rules, regulations and policies of the Kansas State Board of Health."

The Program of Cancer Control in Kansas

About 20 years ago the Kansas Medical Society organized a Committee on Control of Cancer. This was the first committee of its kind in any state medical society in the United States. Under the leadership of Dr. C. C. Nesselrode, it started the work in postgraduate training for doctors in cancer and participated in the first educational programs directed toward an enlightenment of the public on facts concerning cancer. Today there are a number of organizations participating in the work in Kansas, and the program set for this year is far more ambitious than any attempted in the past. It is the purpose of this article to deal briefly with these various organizations, telling of the work they do, how they cooperate with one another, and further, to present in a little more detail the program of the Committee on Control of Cancer.

The State Board of Health has been cooperating with the state society committee for at least 10 years, and during that period their part of the program has grown tremendously. Almost yearly they have participated in and given financial support to the postgraduate lecture series on cancer given at five or six different locations over the state. They have from the start furnished statistical information of value concerning cancer in Kansas. One year they participated in the preparation of and bore the expense of an exhibit which was prepared by the committee, the Women's Field Army, and the State

Board of Health and shown in the scientific exhibit section of the American Medical Association meeting. They have likewise been most cooperative with the Women's Field Army in having prepared and printed literature for distribution through the Women's Field Army. They have also assisted the Field Army in putting on exhibits and in showing motion picture films on cancer at meetings arranged by the Women's Field Army. This past year a separate section on Control of Cancer has been established in the State Board of Health with Dr. Robert H. Riedel as director. Dr. Riedel is inaugurating a cancer registry in the state with which he plans to get initial and followup reports on all patients with cancer admitted to Kansas hospitals approved by the American College of Surgeons. Financial aid for clerical work necessary in participation in this program will be furnished participating hospitals. Dr. Riedel is a member of the Society's Committee on Control of Cancer. Dr. Beelman, executive director of the State Board of Health, is also very much interested in the cancer problem and has contributed a great deal of his time and energy to the work of the Kansas Division of the American Cancer Society.

The Women's Field Army of the American Cancer Society was organized in Kansas in 1936. With its work you are quite familiar. Each year the Kansas Women's Field Army has put on an educational campaign as well as a financial campaign throughout the state. Their part in the program of cancer control is perhaps the most important part of the whole program. Education of the lay public is recognized as an essential to lowered mortality rates in cancer. The Women's Field Army in Kansas has done an exceptionally fine job, not only in the educational programs they have presented each year, but also in the campaign to raise funds to carry on the work of the Field Army and of the American Cancer Society of which it is a part.

The Kansas Division of the American Cancer Society was organized this fall and Dr. Clifford C. Nesselrode was elected president; Mrs. J. E. Johntz of Abilene, the Kansas State Commander of the Women's Field Army, was elected vice president of this organization; Mr. Laird Dean of Topeka was elected chairman of the executive committee, and Dr. F. C. Beelman of the State Board of Health its secretary. The Kansas Division of the American Cancer Society has come into being as a part of a reorganization program of the American Cancer Society throughout the United States. Last year a large amount of money was raised by the Women's Field Army and the American Cancer Society. In Kansas alone something over $165,000 was raised. Forty per cent of the money raised in any state goes to the national organization and is diverted chiefly into large research projects approved by that organization. Sixty per cent of the money remains in the state. It is the responsibility of the State Division of the American Cancer Society to closely supervise the expenditures of the funds which have been entrusted to the organization by the public. With the large amount of money which was raised last year has come the opportunity to expend money for worthwhile projects within the state. All requests for funds or project applications must be approved by the local component of the American Cancer Society, and then must go to the Projects Committee and the Executive Committee of the Kansas Division for approval. Further, they must be forwarded on to the National Headquarters Division for approval before funds can be delivered for local projects in the state. The medical society is well represented in the Kansas Division of the American Cancer Society. The Women's Field Army is likewise well represented on the Board of Directors and on the Executive Committee of the Kansas Division. Mr. Laird Dean is only one of several prominent public spirited citizens on this committee. The State Board of Health is represented on the board of directors by both Dr. F. C. Beelman and Dr. Robert H. Riedel.

The Committee on Control of Cancer of the Kansas Medical Society has planned an elaborate program for Kansas this year. The committee has attempted to cooperate in every way with the State Board of Health, with the Women's Field Army, and the Kansas Division of the American Cancer Society, participating in the programs and the work of the latter two organizations. Its program will be discussed in several sections.

The most important part of the program of the state committee devolves about improving the services to the patient. With the raising of this large fund of money in Kansas last year has come a clamor for the development of cancer clinics. Some have been established, but those who have participated in the work of the Field Army and the American Cancer Society have come to your Committee on Control of Cancer asking for advice as to the organization of clinics in various localities. Clinics relative to prevention, diagnosis and treatment of cancer may be divided into three broad categories. First, are detection clinics in which periodic health examinations are performed in an effort to detect precancerous lesions or early cancer. To these clinics only patients who do not have symptoms of cancer are admitted. In the second category are the diagnostic clinics which are designed to complete the diagnosis in patients suspected of having cancer. In the third cate-

gory are the treatment clinics in which patients with cancer receive treatment.

Over a year ago the state society sent letters to each county medical society suggesting the formation of a cancer detection clinic in each county. There has been little response to this suggestion. A few so-called detection clinics which have been organized have really been diagnostic clinics rather than detection clinics. After much thought over a considerable period of time, the committee has reached the conclusion that cancer detection is best carried out in the doctor's office. Cancer detection, or the discovery of precancerous lesions or early cancer in individuals having no symptoms of cancer is best accomplished by thorough periodic health examinations. A superficial examination in a clinic may fail to detect precancerous lesions or early cancer, and if a patient suffering with such a lesion is assured that he does not have cancer, much harm can be done. With this in mind, the committee has prepared an examination blank for use in periodic health examinations. The blank has been prepared with the idea of conserving as much of the doctor's time as possible. The history part of the blank is to be filled out by the patient and this may be done before the doctor sees the patient. The physical examination findings can be filled in with a minimum of effort. The doctor will charge each patient a fee commensurate with the service rendered and the patient's ability to pay. Upon completing the blank, the top part containing the patient's name and other identifying data can be detached from the record and on it a summary of the positive findings made. This can be kept in the doctor's file. It is the hope of the committee that each doctor will send in the lower part of the blank, which contains no identifying data other than a number, to the Kansas Division of the American Cancer Society. For this, the cancer society will pay the doctor a small fee to cover his clerical and mailing expense. It is felt that the information which may be derived from a study of a large series of these blanks may be of great value in determining the merit of the periodic health examination in the prevention or early diagnosis of cancer. Your cooperation in this program will be greatly appreciated. These blanks may be used in the examination of any patient who presents himself for a complete physical examination or periodic health examination. They have been prepared by your committee and approved by the Council of the Kansas Medical Society, and printed and distributed by the Kansas Division of the American Cancer Society. As each doctor sends in the lower parts of the blanks after completing them, replacements will be sent to him from the central office in Topeka. If the doctor desires to have additional blanks to use as copies for his own files, he may purchase these without identifying numbers from the Kansas Division of the American Cancer Society.

It is the feeling of the committee that it is desirable to have diagnostic clinics established in all of the hospitals in Kansas which meet the standardization requirements of the American College of Surgeons. The committee has outlined certain minimum standards for such diagnostic clinics in Kansas hospitals. They are as follows:

1. Personnel.
   - A. Officers.
     1. Chairman, M.D.
     2. Lay Secretary.
   - B. Basic Staff (One or more of each of the following)
     1. Surgeon.
     2. Internist
     3. Radiologist (May be non-resident)
     4. Pathologist (May be non-resident)

     (When radiologist and pathologist are non-resident at least two surgeons and two internists should be on the basic staff to insure a minimum attendance of three.)
   - C. Consultant Staff. (Will consist of one or more of each of the following specialists.)
     1. Gynecologist.
     2. Otolaryngologist.
     3. Ophthalmologist.
     4. Urologist.
     5. Dermatologist.
     6. Orthopedist.
     7. Thoracic Surgeon.
     8. Plastic Surgeon.
     9. Anesthetist.
   - D. In hospitals in which all of the above specialists are not represented on the hospital staff exceptions will be made to staff requirements except in the case of the surgeons and internists. It is desirable for a non-resident radiologist or pathologist to attend the meetings of the clinic, but is not required if their reports are available on all patients and records presented in the clinic. All other members of the basic staff must attend 80 per cent of the meetings and all members of the consultant staff must attend 80 per cent of the meetings when notified of presentation of cases in their specialty.
   - E. Certified specialists are desirable in both basic and consultant staffs but are not essential for approval if not available.
   - F. The staff must be permanent, not a service rotated among various physicians throughout the year.

2. Meetings and Procedure.
   A. Meetings will be held at least twice monthly.
   B. The histories of all cases of tumor admitted to the hospital since the last meeting of the clinic will be presented to the clinic. Any suggestions of the clinic concerning the management of these patients will be promptly submitted to the attending physician.
   C. Patients with tumor or diagnostic problems in the hospital or from without will be seen in the clinic only when referred by their attending physician. In such cases examinations will be made by specialists designated by the chairman or director of the clinic and for such examinations each will render separately a statement for services rendered. Fees will be commensurate with the extent of diagnostic findings and recommendations will be promptly submitted to the referring physician.
   D. In all cases of cancer admitted to the hospital in which the clinic is organized and in all cases examined in the clinic, records will be kept on the approved Cancer Record Forms of the A. C. S. Records must include a systematic follow-up. A file must be kept both by name and by diagnosis. Report of all such cases will be made to the Cancer Registry of the Kansas State Board of Health, using the proper forms supplied for this purpose.

These standards are not nearly as rigid as those of the American College of Surgeons, but it seems important that diagnostic clinics be established in as many of our standardized hospitals as possible within the next few months. It is hoped that once these diagnostic clinics are established that they will strive to improve their facilities so as to meet the requirements of the American College of Surgeons for diagnostic tumor clinics, or better still, treatment tumor clinics. The Kansas Division of the American Cancer Society has already voted to allocate $500 to each hospital organizing a cancer or tumor diagnostic clinic which meets the standards of the Committee on Control of Cancer. It is thought that this $500 should help to defray the clerical expense incidental to the organization and operation of such a clinic.

The third type of clinic is the treatment clinic. Facilities are not available nor is the need present for treatment clinics in all of the hospitals in which diagnostic clinics may be organized. The committee does feel that there are certain areas in the state in which facilities for x-ray therapy and radium therapy should be made available. Letters have been sent to county medical societies and to councilors in these areas suggesting the development of personnel and physical facilities to provide more complete service for the cancer patient. It is felt that all areas in the state in which cancer treatment facilities are available should attempt to rapidly improve these facilities so as to meet the standards of the American College of Surgeons for tumor treatment clinics. These standards require in addition to the medical specialists on the staff facilities for both x-ray and radium therapy. To aid in the development of these facilities the Executive Committee of the Kansas Division of the American Cancer Society has budgeted funds which may be used in improving cancer therapy facilities in those areas in which project applications are approved.

The cooperation of every doctor in the state of Kansas is needed in this program to improve the service for the patient in early diagnosis and early treatment of cancer. Periodic health examinations following the form outlined in the blanks provided for these examinations are a very important part of this program. The organization and perfection of diagnostic and treatment tumor clinics in hospitals in Kansas will tend to improve the service for the cancer patient. If properly organized and carried out, they will tend to serve the function for which they are designed much better than will any clinics organized by the state or federal government. It is the feeling of your committee that there is no place for state medicine in this program of cancer control.

In addition to the program outlined above, there is a further program for the doctors themselves. A postgraduate course on cancer is being planned this year in cooperation with the Extension Division of the University of Kansas, and the Committee on Postgraduate Study of the Kansas Medical Society. Full day courses will be given in five different locations throughout the state. In addition to this, refresher courses are being planned at the University of Kansas. Data concerning these courses will be available soon, and it is felt that part of the expense to the doctor involved may be borne by the Kansas Division of the American Cancer Society. In addition, it is felt that it is very important to have each county medical society devote at least one program yearly to the subject of cancer. To aid in the presentation of such a program, your committee is preparing a suggested program including a series of exhibits on cancer of the colon and rectum, and motion pictures on the same subject. When these materials are ready you will receive information concerning them through the state society. Each month one section of the Journal of the Kansas Medical Society will be reserved as a cancer page. Other articles on cancer will appear in the Journal. Papers on cancer by outstanding men will constitute a part

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of the program at the annual meeting of the Kansas Medical Society.

A better informed public, a better organized and better informed profession, and the cooperation of all concerned can lead to a substantial reduction in mortality from cancer in Kansas.—*Howard E. Snyder, M.D., Chairman, Committee on Control of Cancer.*

Annual Meeting — May 12-15, 1947

The 88th annual session of the Kansas Medical Society will be held in Topeka, Kansas, beginning on Monday, May 12, and closing on Thursday, May 15, 1947. All scientific sessions and exhibits will be in Topeka's beautiful municipal auditorium. The scientific program is complete and promises to be of unusual interest to doctors in all specialties and those engaged in general practice. With practically all members returned from the armed forces, attendance for this session is expected to be greater than ever before.

Hotel accommodations will still be somewhat difficult to obtain and should be arranged for as early as possible. The larger hotels in Topeka are the Jayhawk, the Kansan, and the Capitol. Should any member be unsuccessful in obtaining reservations at these hotels, he will be sent a list of other smaller hotels on request.

As usual, the annual session will open with a golf tournament and a skeet shoot on Monday. The annual golf and skeet dinner has been arranged for that evening. Scientific sessions begin on Tuesday morning and continue through Thursday afternoon. On Wednesday evening the annual banquet, with a speaker of national prominence, will be presented.

Additional information regarding this meeting will be published in the Journal in succeeding issues, but it is again recommended that each physician begin now to plan for his visit to Topeka during the days of May 12-15.

The committee on arrangements for the 88th annual session is as follows:

General Chairman—Dr. Dwight Lawson
Scientific Program—Dr. Don C. Wakeman
Commercial Exhibits—Dr. L. A. Curry
Scientific Exhibits—Dr. Henry S. Blake
Arrangements—Dr. B. I. Krehbiel
Reception—Dr. Lucius E. Eckles
Publicity—Dr. Harry J. Davis
Entertainment—Dr. James D. Bowen
Auxiliary—Dr. Leo A. Smith

1947 dues are now payable. See the secretary of your county society.

Scientists Search for Amino Acid Mixture

Two factors, one cost and the other as yet unknown, are baffling scientists in their search for a simple amino acid mixture to provide proteins to the malnourished and ill.

An explanation of the complicated chemical procedures now required to produce amino acid preparations was given members of the scientific section of the Proprietary Association of America by Dr. Charles F. Kade, Jr., of Sterling Drug, Inc., early in December.

"Perhaps the simplest way to prepare a product to meet many of the specifications would be to make mixtures of synthetic and purified amino acids," he said, "but there are two serious disadvantages. One is economic. The cost of purifying or synthesizing sufficient quantities is still very high. Also, there is mounting evidence that proteins contain an unknown factor, perhaps another amino acid, the constitution of which is not known; or a necessary linkage, which cannot be synthesized by animals or humans at a rate commensurate with their needs."

Currently available amino acid preparations are chiefly derived from casein, the principal protein of milk, and lactalbumin, likewise found in milk. A flavor as strong as that of present casein hydrolysates is extremely difficult to disguise, however, and such products are generally designed for parenteral administration where taste is not a factor.

The National Research Council has recommended that normal individuals obtain not less than one gram of protein per kilo of body weight for adequate maintenance, but in sickness the demand for amino acids may be greatly increased. Since the malnourished or ill may be unable to obtain or absorb sufficient amino acids from food, research is being conducted to discover some ready means of supplying the acid.

Many Immune to Mumps

Thirty per cent of the American people probably have had mumps without knowing it, according to a report from medical scientists working at the University of Pennsylvania and Harvard University under a contract with the Commission on Measles and Mumps of the Surgeon General's Office, United States Army.

Mumps and measles usually are paired as childhood maladies, although the study was made on 50 groups of both children and adults. Each disease is contagious and is caused by a specific filterable virus, and one virus is presumably as widely disseminated in the population as the other.

The studies show that about 33 per cent of young adults have a probable acquired immunity to mumps, indicating some past infection of which they were unaware, and it is believed that one attack protects an individual against further attacks of the virus for the rest of his life. Statistical studies have shown that about 90 per cent of the American population suffer from measles at some time, and only 60 per cent are victims of mumps.

The immunity of a person was determined by the so-called "complement-fixation" test of the blood serum with mumps virus cultivated in incubated chicken eggs, and also by a skin test with similar material. In this hidden reservoir of acquired immunity, mumps seems to bear some likeness of poliomyelitis, also a virus disease of children. The technique of determining immunity may prove of considerable value in times of mumps epidemics when the relative susceptibility of a population can be determined before undertaking defense measures.

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COUNTY SOCIETIES

The 45th annual meeting of the Shawnee County Medical Society was held at the Hotel Jayhawk, Topeka, December 2. Dr. R. W. Emerson, who was elected last year, took over the office of president for 1947 with Dr. Orville Clark as secretary and Dr. Omer Raines as treasurer. Dr. Floyd C. Taggart was named president-elect. Three charter members of the group were present, Doctors W. S. Lindsay, W. F. Bowen, and W. L. Warriner.

Prof. L. R. Laudon of the geology department of Kansas University entertained with a talk on the Alcan highway, illustrated with colored movies.

* * *

Officers for 1947 were elected at a meeting of the Clay County Medical Society held at Clay Center December 11. The following were chosen: president, Dr. S. A. Anderson; vice president, Dr. Carl Ruff; secretary-treasurer, Dr. J. B. Stoll; censor, Dr. G. W. Bale; delegate, Dr. G. B. McIlvain. Dr. C. B. Trees of Topeka was guest speaker at the meeting, presenting a paper on intervertebral disc problems.

* * *

Dr. A. C. Baird was elected president of the Labette County Medical Society at a meeting held November 27, a Thanksgiving dinner held at the Parsons Quality cafe with Dr. J. D. Pace as host. Dr. Guy Cramer was chosen vice president; Dr. E. C. Beaty, secretary-treasurer; Dr. Pace, delegate. Speakers on the program were Dr. Paul E. Davis and Dr. O. E. Stevenson, who spoke on epilepsy and the work being done at the Parsons state hospital.

* * *

The monthly meeting of the Wilson County Medical Society was held December 11 at the Fredonia Coffee Shop with members of the Auxiliary as guests. New officers chosen were: president, Dr. F. A. Moorhead; vice president, Dr. Raymond Beal; secretary-treasurer, Dr. E. C. Duncan. Dr. W. T. Rich conducted a clinical pathological conference, and a group discussion followed.

* * *

Dr. Louis R. Haas was speaker at the December meeting of the Crawford County Society, held at Pittsburg December 19. His subject was "Allergy." The following officers were elected for 1947: president, Dr. C. M. Montee; vice president, Dr. C. W. Erickson; secretary, Dr. Paul B. Leffler.

* * *

Dr. W. N. Johnson, who is 93 years old and has been in active practice in Columbus for 58 years, was honored by the Cherokee County Socoiety at a meeting held at his home December 17. Guests of the society were Doctors Charles T. Reid, W. J. Sayles and F. L. Wormington of Miami, Oklahoma. Dr. Reid, who started his practice in Carona and practiced in Cherokee county for 20 years, was principal speaker and paid tribue to the veteran physicians of the society, especially Dr. Johnson.

A short business session was held and officers were named for 1947. Dr. Frank James was chosen president; Dr. H. A. Browne, vice president; Dr. R. B. Stortz, secretary.

* * *

The Pottawatomie County Society, at its meeting December 16, elected the following officers: president, Dr. Thomas Dechairo, Westmoreland; secretary, Dr. A. H. Bressler, Wamego.

Dr. L. K. Kimmer was elected president of the Douglas County Society at a meeting held at Lawrence December 12. Other officers named were: Dr. J. A. Holmes, vice president; Dr. M. L. Belot, Jr., secretary; Dr. R. B. Hutchinson, treasurer; Dr. H. P. Jones, delegate to state meeting. The membership decided that the incoming president should be the official society representative on the Lawrence-Douglas County Board of Health.

* * *

Members of the Miami County Society entertained their wives and secretaries at a dinner meeting at Paola December 20. The following officers were elected: president, Dr. Veryl Elson; vice president, Dr. William Brown; secretary-treasurer, Dr. Joseph Fowler; censor for a three-year term, Dr. P. F. Gately; delegate to the state meeting, Dr. C. A. Fisher; alternate, Dr. S. E. Woods.

* * *

A meeting of the Edwards County Society was held December 11 at the office of Dr. W. P. Stoltenberg. Officers chosen for 1947 were: president, Dr. R. T. Unruh; vice president, Dr. Stoltenberg; secretary-treasurer, Dr. F. G. Meckfessel; delegate to state meeting, Dr. R. E. Schnoebelen.

* * *

Dr. J. R. Prichard and Dr. Robert S. Young were re-elected to their respective offices of president and secretary-treasurer of the Bourbon County Medical Society at a meeting held at Fort Scott December 18.

Smith Clinic Entertains

Returning to a pre-war custom, the Smith Clinic held its annual dinner for physicians of the Pittsburg area at the Hotel Stilwell December 5. Approximately 50 physicians were present for the dinner and the scientific program which followed. Dr. E. H. Hashinger and Dr. Mahlon Delp, from the Department of Internal Medicine at the University of Kansas School of Medicine, presented the program. Dr. Hashinger spoke on "Disorders of the Thyroid Gland" and Dr. Delp discussed "The Cardiac Patient."

Streptomycin Quotas Lifted

Streptomycin, formerly supplied only under allocation by the Civilian Production Administration to selected depot hospitals and other government agencies, may now be ordered by all hospitals without restrictions, according to announcement made recently by Winthrop Chemical Company, Inc., one of the first distributors of the new antibiotic. Although still under government control, the drug will probably be made generally available through drug trade channels as soon as supplies are plentiful.

Motion Picture on Polio

A newly produced motion picture, "A New Horizon," has been filmed by RKO-Pathe for the National Foundation for Infantile Paralysis. The film, depicting a complete physical therapy department and the way it is used in the modern hospital, has been approved by the American College of Surgeons. It can be purchased or secured on a loan basis from the Foundation, 120 Broadway, New York 5, New York.

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MEMBERS

Dr. John Aldis, who has been practicing in Council Grove since last spring, is returning to hospital and institutional work this month and Dr. Norman E. Burkett, Geary County public health officer, will move to Council Grove to take over the former Haslam clinic facilities.

* * *

Dr. Walton C. Woods has returned to his practice in Manhattan after having spent two and a half years in the Army, 18 months in the Pacific. He is associated with the Student Health Service at Kansas State College.

* * *

Dr. W. M. Mills, Topeka, president of the Kansas Medical Society, was named president of the Western Surgical Association at a meeting held at Memphis, Tennessee, December 5-7.

* * *

Dr. Galen Tice of Kansas City flew to Havana, Cuba, last month to attend the annual meeting of the Inter-American Congress of Radiology.

* * *

Dr. R. B. Wilson, who has been practicing in Jetmore, has announced that he will soon accept a government position. He has resigned as county physician and county health officer.

* * *

Miss Elizabeth G. Brooks, the daughter of Dr. Edgar E. Brooks of Burden, was named "Typical American Nurse of 1946," and her picture was featured on the cover of the November issue of "R.N." During the war Miss Brooks spent three years overseas with the A.N.C., and she is now head nurse in the St. Louis Children's Hospital.

* * *

Dr. C. W. Walker, who has been practicing in Eskridge for almost 40 years, has announced his retirement and has moved to Topeka.

* * *

Dr. C. D. Updegraff, Greensburg, has announced his retirement from active practice and has resigned his position as county health officer. Dr. E. P. Deal, who recently moved to Greensburg from Dighton, was appointed health officer.

* * *

Dr. F. E. Wrightman, Dr. C. C. Hunnicutt and Dr. V. E. Brown, who have been practicing independently in Sabetha, have announced the establishment of the Sabetha Clinic. For the present the three doctors will compose the clinic, but more medical personnel will be added in the future.

* * *

Dr. Earl L. Mills, who has been taking postgraduate work since his release from military service last spring, has returned to his practice in Wichita.

* * *

Dr. R. R. Melton is now serving as mayor of the city of Marion.

Celebration Honors Dr. O'Donnell

Organizations and individuals of Junction City and Fort Riley joined forces in preparing for an Armistice Day celebration in Junction City to honor Dr. Fred W. O'Donnell, who has begun his 50th year of the practice of medicine there. The morning celebration was featured by a parade to the municipal building, where lunch was served to the thousands attending. The afternoon program was begun with a band concert and informal reception. During the evening Dr. O'Donnell was honor guest at the officers' club at Fort Riley.

Two of Doctor O'Donnell's oldest friends, General Jonathan M. Wainwright and the Rt. Rev. Robert Nelson Spencer, Bishop of the Diocese of West Missouri, headed the list of speakers for the occasion.

Among the organizations cooperating in arrangements were the Elks lodge, officers of Fort Riley, the American Legion, Veterans of Foreign Wars, and Union Pacific railroad groups.

New VA Director

Dr. Charles H. Beasley, former communications zone surgeon in the European theater, has been named branch medical director for the Veterans Administration in Kansas, Missouri, Arkansas and Oklahoma. In addition to directing the 10 V.A. hospitals in this area, Dr. Beasley will supervise the out-patient treatment of veterans in the four states.

Residencies at V. A. Hospitals

In announcing the appointment of Dr. Edward H. Hashinger, Kansas City, as assistant educational director and coordinator for the four V. A. hospitals in this area, Dr. H. R. Wahl, dean of the University of Kansas School of Medicine, recently disclosed plans for introducing residency programs in these four hospitals.

Under the "Dean's Committee" plan, the medical school, in cooperation with the Veterans Administration, will offer opportunities for physicians studying for specialist ratings. They will be immediately supervised by attendant doctors, with top supervision provided by consultants, all of whom will be members of the local county medical societies. Training periods will range from one to three years, depending upon experience and postgraduate work, and the program will be on a university basis with weekly clinical and pathological conferences.

This plan is now functioning at the V. A. hospital in Excelsior Springs, was recently inaugurated at Wichita, and will soon be adopted in Topeka and Wadsworth.

Death Notices

HENRY WALKER WEST, M.D.

Dr. Henry W. West, 90, who had practiced medicine a total of 58 years, died at his home at Yates Center November 15. He had been in poor health for several years and had retired from active practice about five years ago. He was an honorary member of the Woodson County Medical Society.

Dr. West received his medical education at Louisville Medical College, Louisville, Kentucky, and was graduated in 1880.

* * *

ROBERT LOUIS LEE, M.D.

Dr. Robert L. Lee, 43, a member of the Wyandotte County Medical Society, died November 28. A graduate of the University of Kansas School of Medicine in 1929, Dr. Lee had practiced in Kansas City since that time, except during World War II when he served in this country and overseas in the Army Medical Corps.

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* *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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Research on BCG Vaccine

Guided by recommendations of a conference of outstanding leaders in tuberculosis from the United States, China and Denmark, the United States Public Health Service, Federal Security Agency, will extend its tuberculosis research program to include studies on the effectiveness of BCG vaccine in preventing this disease.

Plans proposed for carrying on this research include establishment by the Tuberculosis Control Division of a single laboratory to produce the vaccine, extensive investigations throughout the country, especially in population groups highly exposed to tuberculosis, controlled study in a community containing 100,000 or more people to determine immediate and long-range results, and development of methods to standardize techniques of preparation of a potent and stable vaccine.

Studies were presented at the conference by Dr. Joseph Aronson, Henry Phipps Institute, Philadelphia, whose work was made possible by a grant from the Medical Research Committee of the National Tuberculosis Association, one of many research projects carried on through the cooperation of the United States Public Health Service.

From the studies presented it appears that BCG vaccination confers increased resistance for the limited period covered in research but is not 100 per cent effective.

Army Reports on Streptomycin

A report on the use of streptomycin in Army medical work was recently released by the office of the Surgeon General and published in the Army Medical Bulletin to give physicians everywhere the advantage of the Army's ability to compile and follow results.

The Army finds streptomycin effective against more than half the infective bacterial organisms ordinarily encountered by surgeons, but believes that early reports exaggerated its value since bacteria may develop resistance to the drug after a few days. In at least one case, test tube experiments showed a 100-fold increase of the resistance of an organism in ten days.

Balanced against the demonstrated value of streptomycin in suitable cases are some apparently toxic effects. Some of these, the Army reports, are probably due to impurities in the drug, but others seem to be specific for the drug itself. The most serious of these is what seems to be an irreversible damage to part of the eighth cranial nerve which appears when streptomycin is given in large doses by injection for more than 10 days, reported in two Army cases.

Organize Psychiatric Foundation

The medical and lay worlds were called upon this month to mobilize their resources behind the newly formed Psychiatric Foundation in the fight against mental ills in America. Sponsoring the foundation are the American Psychiatric Association and the American Neurological Society.

Five objectives have been announced: education of members of the psychiatric team, research, legislation, child psychiatry and education of the public.

The foundation explains that its first concern shall be the training of psychiatrists, psychiatric nurses, psychiatric social workers, psychologists, occupational therapists, and other allied workers, although that problem is complicated by lack of educational facilities. The 70 existing departments of psychiatry in medical schools must be built up and others must be established.

Research into the causes and cures of mental illnesses and emotional disorders has been superficial because of the lack of financial backing, and the foundation will establish a program of delving more deeply into this study.

All legislative procedures affecting the field of psychiatry will be studied, and psychiatrists will take the lead in stimulating interest in modernizing and broadening existing laws.

The development of child psychiatry is listed by the foundation as a separate objective to give emphasis to this particular field, since it has been most neglected in the past. In addition to the institutional aspect, child psychiatry will be promoted in schools through school physicians, teachers and leaders in the hope that educational work will correct faulty attitudes and habits at an early stage in life.

National Conference on Medical Service

The 20th annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, on February 9, 1947. Registration will begin at 9:00 a.m., and the program will include discussions in the fields of national affairs, economics and medical education. There is no registration fee and all physicians are invited to attend.

Medical Officers Needed

The United States Civil Service Commission has announced an examination for Medical Officer (Specialist) for positions in various medical fields in Washington, D.C., and vicinity. Salaries range from $7,102 to $9,975. Application forms may be secured from Civil Service regional offices or from the central office in Washington.

Centennial Session of A.M.A.

The American Medical Association, in announcing plans for its centennial session in Atlantic City, June 9-13, 1947, calls attention to the fact that only fellows of the A.M.A. and invited guests are eligible to attend. Those physicians who are not fellows of the A.M.A. and are planning to attend the session are urged to write immediately to the A.M.A., 535 North Dearborn Street, Chicago, for eligibility requirements.

ANNOUNCEMENTS

February 7—Written Examination, American Board of Obstetrics and Gynecology, Inc. Change in requirements now effective provides that case records must be forwarded to the secretary's office from 30 to 60 days after candidates have received notice of eligibility for admission to examinations. Candidates will be examined in both branches of the specalty of obstetrics-gynecology. For information address Paul Titus, M.D., 1015 Highland Building, Pittsburgh 6, Pennsylvania.

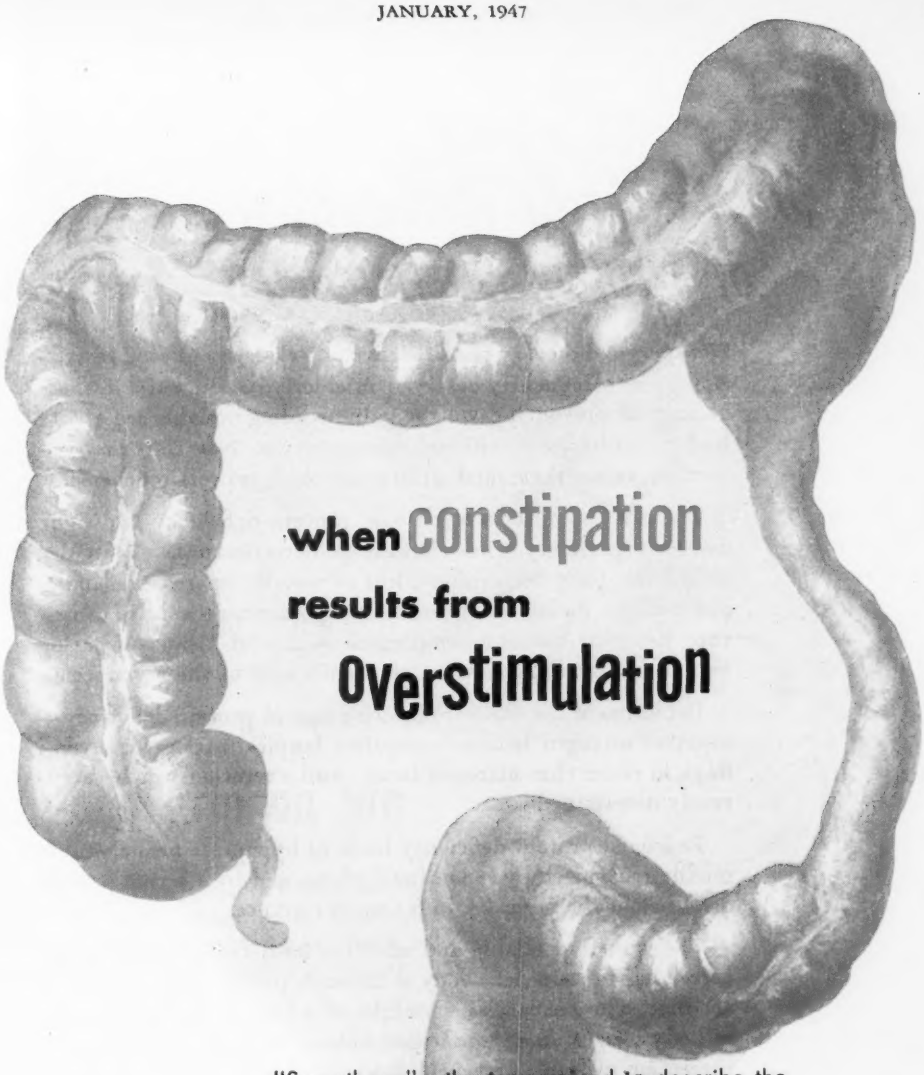
February 10-11—Meeting, Federation of State Medical Boards of United States, Chicago, Illinois.

March 17-20—Sixteenth Spring Clinical Conference, Dallas Southern Clinical Society, Hotel Adolphus, Dallas, Texas.

April 28-May 2—Annual Session, American College of Physicians, Chicago, Illinois.

MAY 12-15—ANNUAL MEETING, KANSAS MEDICAL SOCIETY, TOPEKA, KANSAS.

June 9-13—Centennial Session, American Medical Association, Atlantic City, New Jersey.



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In the Early Recognition of Protein Deficiency

Unsupervised dietary curtailment and self-imposed food restrictions, not infrequently observed in elderly patients and in those desirous of preventing weight gain or losing weight, are apt to lead to multiple nutritional derangements. Not the least important among these, and often overlooked, is protein deficiency.

The early symptoms of chronic protein deficiency are vague and lack specificity. Thus they escape detection unless pointedly looked for. Easy fatigability, loss of weight, anorexia, malaise, and a slight pallor due to underlying secondary anemia constitute the most common complaints. A careful history of eating habits usually discloses the true significance of these symptoms.

Detection of the earliest objective sign of protein deficiency—negative nitrogen balance—requires hospitalization for several days, in order that nitrogen intake and excretion can be accurately determined.

Prolonged protein deficiency leads to hypoproteinemia, and is readily recognized by generalized edema and by a serum protein level below the normal 7 to 8 Gm. per 100 cc.

The most dependable and effective means of preventing and correcting protein deficiency is through proper organization of the diet. The recommended intake of 1 Gm. of protein per Kg. of body weight insures nitrogen balance in normal persons. For correction of frank protein deficiency, at least 2 Gm. per Kg. of body weight—and frequently considerably more—is required.

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With infant mortality at its highest during the first month of life, the fewer the burdens on the baby's endurance, the firmer will be his grip on life. And gastro-intestinal upset, colic and diarrhea can be heavy burdens for an infant.

'Dexin' has proved an excellent "first carbohydrate." Because of its high dextrin content, it (1) resists fermentation by the usual intestinal organisms; (2) tends to hold gas formation, distention and diarrhea to a minimum, and (3) promotes the formation of soft, flocculent, easily digested curds.

'Dexin' brand High Dextrin Carbohydrate is simply prepared in hot or cold milk and is readily adaptable to increasing formula needs. 'Dexin' *does* make a difference. 'Dexin' Reg. Trademark

HIGH DEXTRIN CARBOHYDRATE **'Dexin'** BRAND

Composition—Dextrins 75% • Maltose 24% • Mineral Ash 0.25% • Moisture 0.75% • Available carbohydrate 99% • 115 calories per ounce • 6 level packed tablespoonfuls equal 1 ounce • Containers of twelve ounces and three pounds • Accepted by the Council on Foods and Nutrition, American Medical Association.

Literature on request

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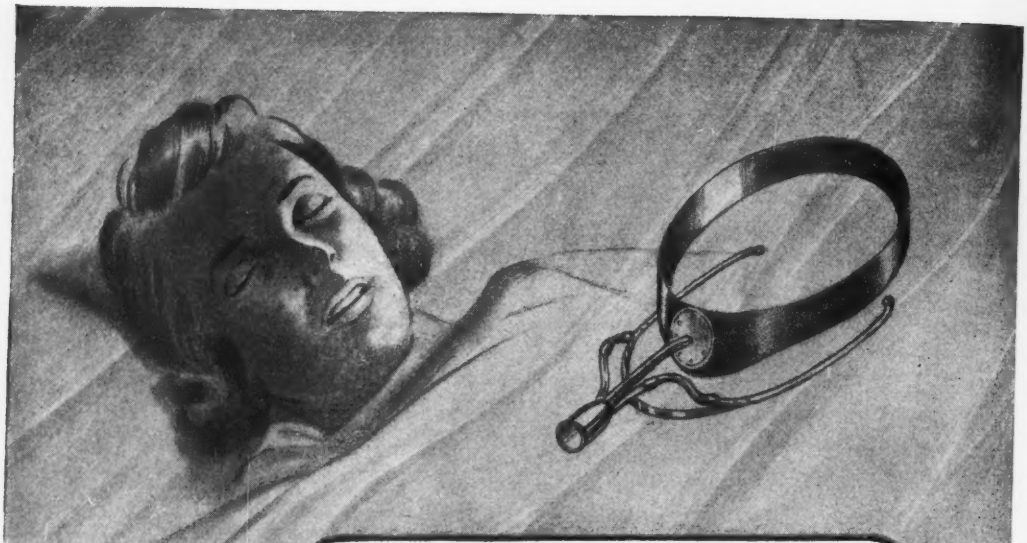

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Available in ampuls (2 cc., 100 mg.); vials (30 cc., 50 mg. / cc.).

WRITE FOR DETAILED LITERATURE

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DIGIFOLIN—TRADE MARK REG. U. S. PAT. OFF. AND CANADA—BRAND OF DIGITALIS GLYCOSIDES

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Privine Hydrochloride promptly shrinks congested nasal mucous membranes. Its vasoconstrictive action lasts for several hours. Added to this basic action, Privine meets the prime criteria for a vasoconstrictor: it is non-detrimental to ciliary activity, has a slightly acid pH, is isotonic, is non-injurious to mucous membranes, and is usually devoid of side effects. Privine lends itself to all conventional methods of application: tampon, spray, displacement procedures, or drop application for interim home treatment.

PRIVINE LENDS ITSELF TO ALL CONVENTIONAL METHODS OF APPLICATION: TAMPON, SPRAY, DROP OR DISPLACEMENT.

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PRIVINE
(Naphazoline Hydrochloride)

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ELIMINATED BY EFFECTIVE VIOFORM TREATMENT

Three available preparations of Vioform make this drug especially adaptable to a combined treatment which is easily managed, economical in cost, and highly effective in eradicating the pathogen. Vioform used locally for office vaginal treatment as Insufflate and by the patient as Inserts is non-irritant and acts to restore normal vaginal acidity. Orally, Vioform tablets are additionally advisable to reduce reinfection from the rectum. Write for folder describing the Vioform treatment of trichomoniasis.

VIOFORM INSUFFLATE CONTAINS BORIC AND LACTIC ACIDS, ZINC STEARATE AND LACTOSE. VIOFORM INSERTS CONTAIN LACTIC AND BORIC ACIDS.

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VIOFORM
(Iodochlorhydroxyquinoline)

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SHOULD BE ALLAYED BY PROPER SEDATION

Before surgery or other emotionally traumatizing treatment, nervous tension and its consequences may be minimized by the sedative action of Dial. Post-operatively, Dial induces refreshing sleep, usually followed by a sense of tranquillity, which may considerably aid recovery. In ambulant patients suffering from insomnia, Dial as a hypnotic provides needed rest, giving greater aptitude for the work of the day. Available in tablets of ½ and 1½ gr., oral solution, and in ampuls.

AVAILABLE IN TABLETS OF ½ AND 1½ GR., ORAL SOLUTION, AND IN AMPULS.

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DIAL
(Diallylbarbituric Acid)

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A CLINICAL ADVANTAGE IN FEEDING THE PREMATURE

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SIMILAC

Similar to breast milk

A powdered, modified milk product, especially prepared for infant feeding, made from tuberculin tested cow's milk (casein modified) from which part of the butter fat has been removed and to which has been added lactose, cocoanut oil, cocoa butter, corn oil, and olive oil. Each quart of normal dilution Similac contains approximately 400 U.S.P. units of Vitamin D and 2500 U.S.P. units of Vitamin A as a result of the addition of fish liver oil concentrate.

The newly diagnosed diabetic and Globin Insulin

WHEN DIETARY MEASURES ALONE cannot control a recently established case of diabetes and insulin must be resorted to, *one daily injection* of intermediate-acting 'Wellcome' Globin Insulin with Zinc will often prove both adequate and beneficial. This simplified regimen can be initiated in the following manner:

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ADJUSTING THE DIET: In general it has been found that a good carbohydrate distribution for the patient on Globin Insulin consists of 1/5 of the total carbohydrate at breakfast, 2/5 at the noon meal, and 2/5 at the evening meal. Any tendency toward midafternoon hypoglycemia may usually be offset by giving 10 to 20 grams of carbohydrate between 3 and 4 p.m.

This starting diet may subsequently be adjusted as required to suit the needs of the patient. Final adjustment of carbohydrate distribution may be based on fractional urinalyses.

ADJUSTING TO 24-HOUR CONTROL: Simultaneously adjust the Globin Insulin dosage to provide 24-hour control as evidenced by a fasting blood sugar level of less than 150 mgm., or sugar-free urine in the fasting sample.

'Wellcome' Globin Insulin with Zinc is a clear solution, comparable to regular insulin in its freedom from allergenic properties. Available in 40 and 80 units per cc., vials of 10 cc. Accepted by the Council on Pharmacy and Chemistry, American Medical Association. Developed in The Wellcome Research Laboratories, Tuckahoe, New York. U.S. Patent No. 2,161,198. LITERATURE ON REQUEST.

'Wellcome' Trademark Registered

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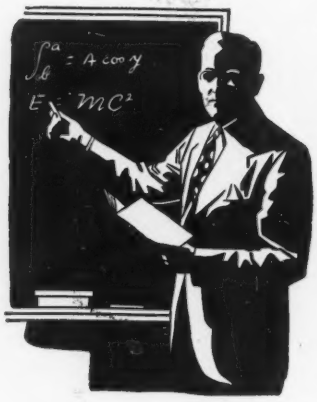

Molder of Minds . . . . .

Dietary Dub!

His diet is balanced, *yet he is a borderline vitamin deficiency case.* Like many others whose occupations are sedentary and who take little exercise otherwise, his caloric requirements and appetite are so small that he simply does not eat *enough* food to supply adequate quantities of the protective factors. As a result his case record has taken its place in his physician's file along with those of all of the other varieties of dietary delinquents: the ignorant and indifferent, patients "too busy" to eat properly, those on self-imposed and badly balanced reducing diets, excessive smokers, alcoholics, and food faddists, to name but a few. First thought in such cases is dietary reform, of course. But this is often more easily advised than accomplished. Because of this, an ever-growing number of physicians prescribe a vitamin supplement in every case of deficiency. If you're one of these physicians—or if you prescribe vitamins only rarely—consider the advantages of specifying an *Abbott* vitamin product: Quality—Certainty of potency—A line which includes a product for almost every vitamin need—And easy availability through pharmacies everywhere. ABBOTT LABORATORIES, North Chicago, Ill.

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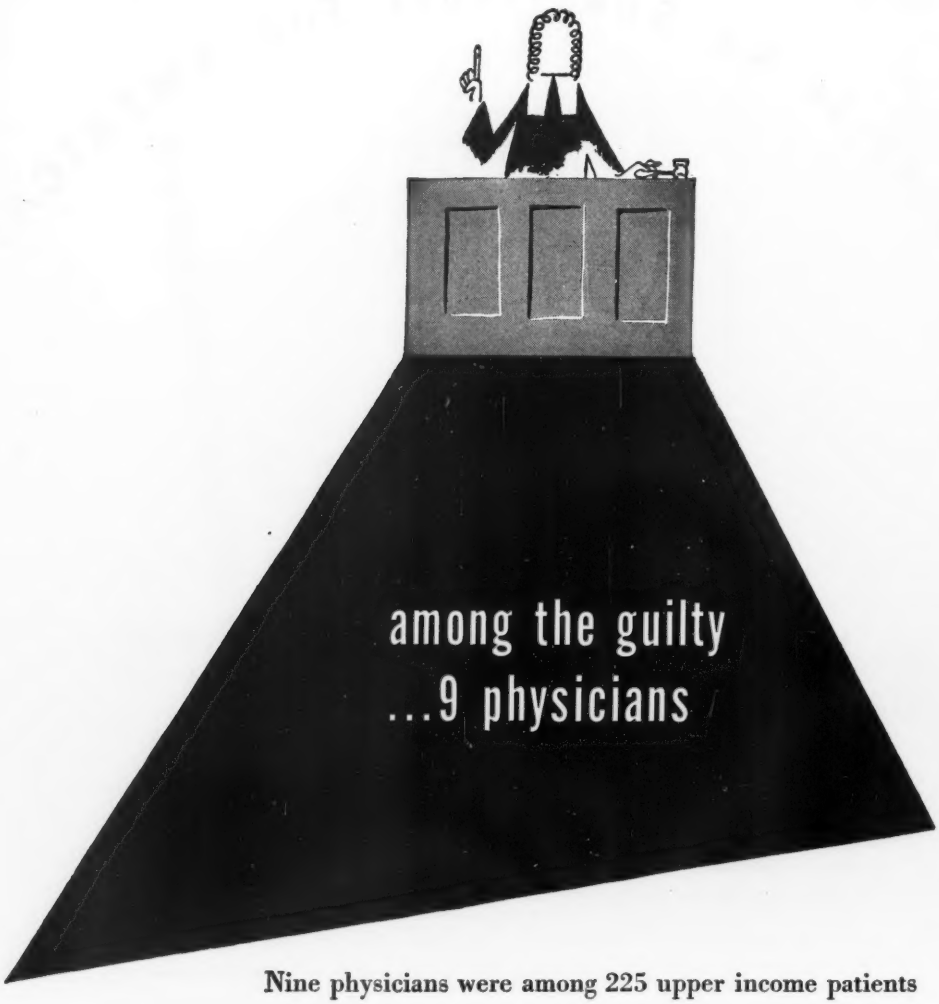

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1. New England J. Med. 228:118 (Jan. 28) 1943.
2. J. A. M. A. 129:613 (Oct. 27) 1945.

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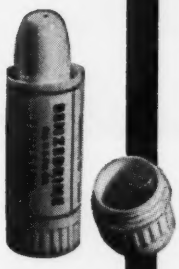
Russell, H.G.B., abstracted, Proc. Roy. Soc. Med. 36:401.



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Each Benzedrine Inhaler is packed with racemic amphetamine, S.K.F., 250 mg.; menthol, 12.5 mg.; and aromatics.

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a better means of nasal medication

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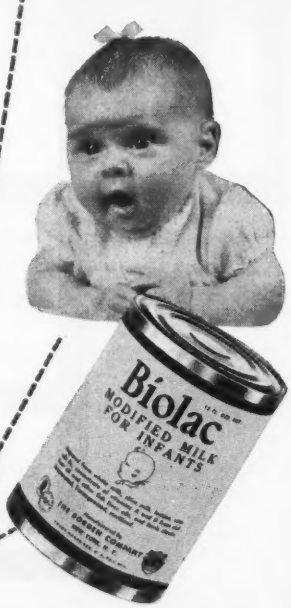

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Quickly prepared . . . easily calculated: 1 fl. oz. Biolac to 1½ fl. oz. water per lb. of body weight.

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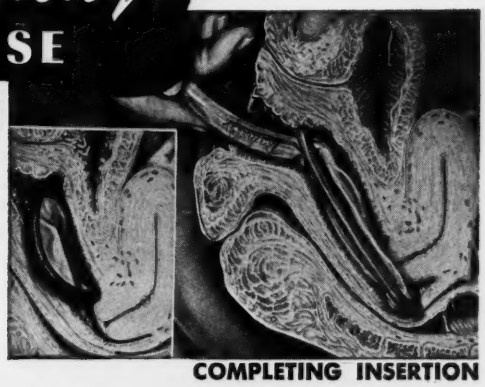

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by DANNY KAYE

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Danny Kaye

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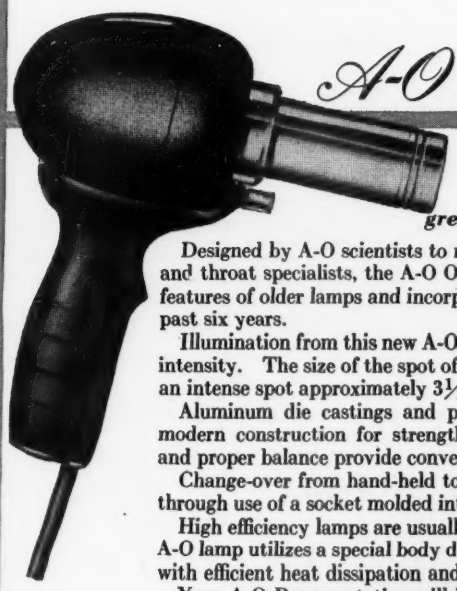

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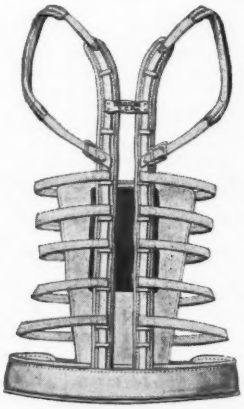

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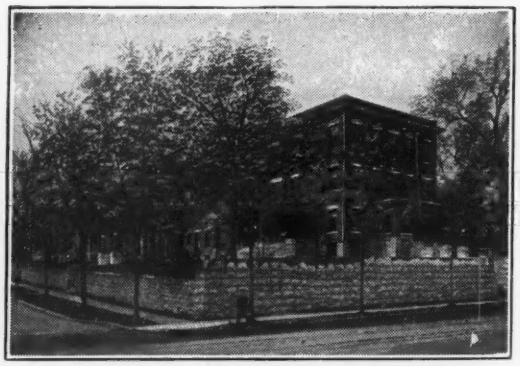

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BOOK REVIEWS

A Surgeon in Wartime China. By Lyle S. Powell, M.D., Lawrence, Kansas. Published by the University of Kansas Press, Lawrence, Kansas. 233 pages. Price $2.50.

This is the people of China, its customs and problems as seen by a Kansas doctor who spent many years in that country—a colonel whose head the Japanese valued at CN $800,000. Here is a searching, intimate visit to an ancient nation, stupidly reeling because of its wounds, rising to stop a modern invader.

China's military failures are understandable after you read that the soldier was looked upon as the lowest form of human life, that only the weakest persons were inducted, that provisions were acquired largely by individual efforts, that the commander in each province was autonomous. It was a point of honor that an invitation be sent the adversary to do battle at a specified time and place and with a stated number of men.

China is teeming with people. Birth and death take place forever in all kinds of places, unnoticed. Throughout the war its people were in motion, fleeing before the enemy, hungry, ill, afraid, and no one offered them help. The wounded were dismissed as of no further military value and left to their own resources. If they died, at least there was that much more rice for the living. Besides, the life you save in China becomes your continued responsibility to feed, clothe and shelter. Into that situation came American military strategists and American doctors to bring order.

The book is by no means all tragic. You will visit in cultured homes and at one place rest five wonderful pages for the description of a Chinese dinner complete with 100-year old eggs, birds' nest soup, sharkfin soup and "mau tai." Now mau tai "is a drink of rank, distinction and authority; a punster might venture that not the least of these qualities is its rank. . ."

The book contains many observations of medical practice and of hospital organization. Herculean obstacles are met with unfailing confidence and with an infectious sense of humor. It is an interesting book by any standards and in this case the Kansas Medical Society takes special pride in the fact that it was written by a member.

The Chest, A Handbook of Roentgen Diagnosis. By Leo G. Rigler, M.D. Published by Year Book Publishers, Inc., Chicago, Illinois. Copyright 1946. 352 pages. Price $5.50.

This volume, The Chest, the fifth in a series of six handbooks of Roentgen diagnosis, is written by a man who has had sufficient experience in teaching and practical radiological diagnosis so that he is well fitted to prepare an excellent handbook.

The atlas method of presentation has been used. Due to the fact that this volume is a handbook, only salient facts are given in the discussions. The illustrations are numerous and very good. In a brief, concise manner an excellent coverage of the subject has been made. This book should be valuable to beginners as well as to men who have had considerable experience in the field of radiology.

The book is printed on good paper, in clear type, and the profuse illustrations are excellent reproductions of good radiographs.—*G. A. Finney, M.D.*

The Kansas State Board of Health reports that there were 4,106 births in Kansas in September, 679 more than in August, breaking all records for the high number of births for any month since these reports have been recorded.

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INDEX TO ADVERTISERS

Abbott Laboratories 42
American Meat Institute 36
American Optical Company 49
Ames Company, Inc. 55
Associated Credit Bureau 54
Ayerst, McKenna and Harrison, Ltd. XIII
Bilhuber-Knoll Corporation 56
Borden Company 46
Bristol Laboratories, Inc. XIV
Brown School 52
Burroughs Wellcome and Company ..... 37 and 40
Camels (R. J. Reynolds Tobacco Company) VII
Camp, S. H. and Company 41
Capper Printing Company 48
Ciba Pharmaceutical Products, Inc. ..... Facing 38
Coca-Cola Company 53
Cook County Graduate School of Medicine 55
Diagnostic Clinic 49
General Electric X-ray Corporation VIII
Goetze Niemer Company 49
Hanicke, P. W. Manufacturing Company 52
Holland-Rantos Company XII
Hynson, Westcott and Dunning ... Inside Back Cover
Isle, W. E. Company 51
Lattimore Laboratories VI
Lilly, Eli and Company ..... Facing XIV
Lyon Photo Service 53
Major Clinic 54
Mead Johnson and Company ..... Back Cover
Medical Protective Company 43
Menninger Foundation 50
M and R Dietetic Laboratories 39
Munns Medical Supply Company, Inc. 54
Page Milk Company 27
Parke, Davis and Company ..... Inside Front Cover and III
Philip Morris and Company, Inc. 33
Physicians Casualty Association 53
Pogue, Mary E. School VI
Producers Creamery Company 52
Quincy X-ray and Radium Laboratories 51
Quinton-Duffens Optical Company 55
Ralph Sanitarium VI
Robinson Clinic 53
Schenley Laboratories, Inc. V
Schering Corporation 31
Schmid, Julius, Inc. 47
Searle, G. D. and Company 35
Smith-Dorsey Company 51
Smith, Kline and French Laboratories ..... XI and 45
Squibb, E. R., and Sons IX
Trowbridge Training School 49
United Rexall Drug Company X
Upjohn Company 44
Winthrop Chemical Company, Inc. 38
Wyeth, Inc. 29
Zemmer Company 54

The weight of the premature infant at delivery is the most important single factor influencing its viability. With each eight-ounce increase in body weight there is a striking reduction in mortality. Evidence indicates that the foetus in utero gains weight at the rate of four ounces per week during the seventh lunar month, six ounces during the eighth and from eight to twelve ounces per week during the ninth lunar month. A three-pound premature infant has a 25 per cent chance of survival, a four-pound infant has a 75 per cent chance. It is clear that even a week's delay in preventing premature labor or termination by section may determine the viability of the baby.—Roy E. Emanuel, M.D., Okla. State Medical Assn. Journal, December, 1946.

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Frazer* states that the ordinary mode of effecting the cure is to split a young ash sapling longitudinally for a few feet and pass the child, naked, either three times or three times three through the fissure at sunrise. In the West of England, it is said the passage must be "against the sun." As soon as the ceremony is performed, the tree is bound tightly up and the fissure plastered over with mud or clay. The belief is that just as the cleft in the tree will be healed, so the child's body will be healed, but that if the rift in the tree remains open, the deformity in the child will remain, too, and if the tree were to die, the death of the child would surely follow.

*Frazer, J. G.: The Golden Bough, vol. 1, New York, Macmillan & Co., 1923

It is ironical that the practice of attempting to cure rickets by holding the child in the cleft of an ash tree was associated with the rising of the sun, the light of which we now know is in itself one of Nature's specifics.

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